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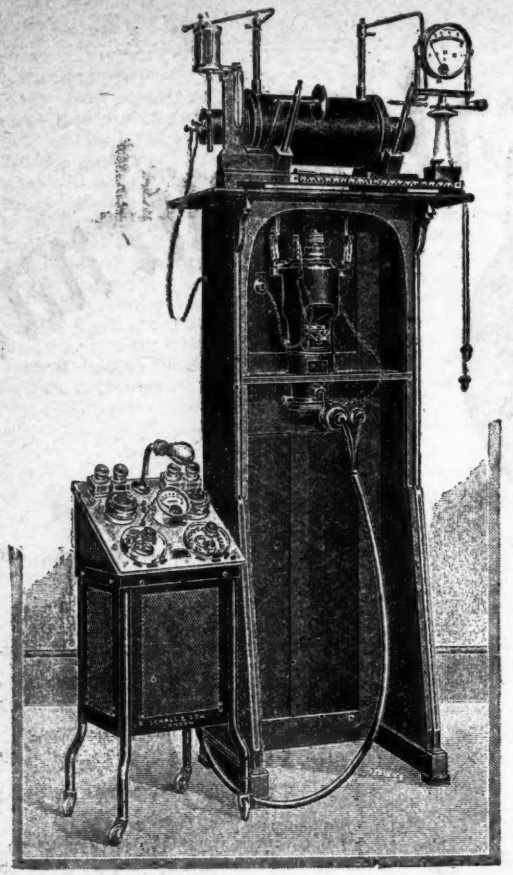

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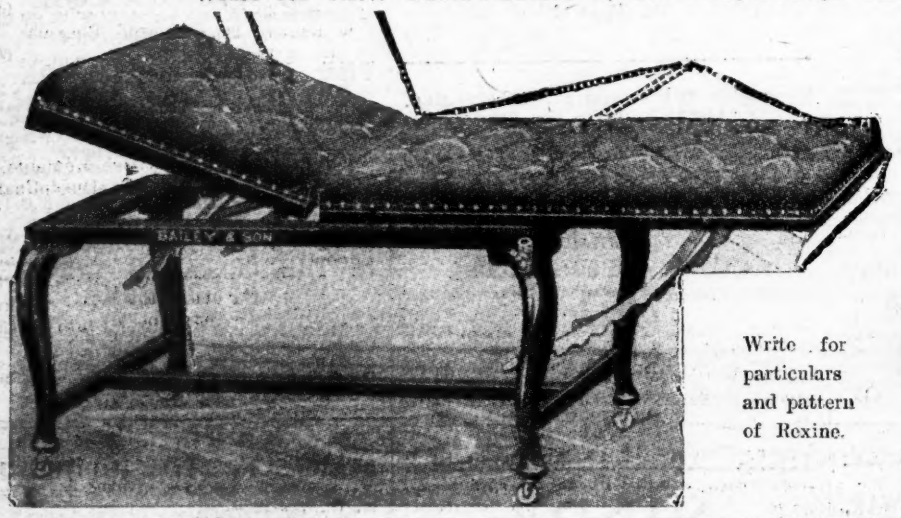

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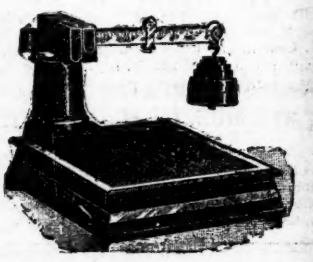

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THE UTILIZATION OF THE MUSCLES OF A STUMP TO ACTUATE ARTIFICIAL LIMBS:

*CINEMATIC AMPUTATIONS.**

BY

V. PUTTI, M.D.,

PROFESSOR OF ORTHOPAEDIC SURGERY IN THE UNIVERSITY OF BOLOGNA, AND DIRECTOR OF THE RIZZOLI (ORTHOPAEDIC) INSTITUTE OF THAT CITY.

It affords me the greatest pleasure to place before the British medical profession the facts as to what has been called cinematic amputation. I feel this all the more because I am thoroughly convinced of the enormous advance which the conception of cinematization will bring about in the treatment of disabled men, and believe that all that concerns this new current of ideas, as well as the store of facts related to them, ought to be placed at the disposal of the world at large.

In briefly reviewing the fundamental theories of plastic motors, and pointing out the vast field thus thrown open to the activity of orthopaedic surgeons and mechanical engineers through the practical application of these theories, I venture to express the hope that our efforts may prove welcome to all those who have hitherto had no opportunity of studying this important scientific innovation.

Whilst in Italy the tireless work of propaganda undertaken by Dr. Giuliano Vanghetti, the original exponent of these theories, has led to their full discussion and close study and to many experiments, and whilst both German and Austrian scientists have been actively working to obtain the most practical application of these same theories, the medical literature of France, England, and America contains very few, if any, allusions to the subject.

In the space at my disposal I must content myself with outlining the fundamental principles upon which the theory is based, pointing out, as briefly as possible, the various ways it can be put into actual practice, and making a short statement as to the method of operation and the results.

The possibility of utilizing the functional resources of the stump so as to convey movement to the artificial limb was an idea that came to Dr. Vanghetti first in 1896, at the time of Italy's second expedition into Abyssinia, when soldiers that had been taken prisoners by the native forces under the Negus were cruelly tortured and mutilated.

From that time onwards Dr. Vanghetti wrote and published innumerable articles, wherein he developed his theory on what he had now named "cinematic amputation." In them he described very fully the origin of his idea and the various methods by which it could be practically applied. Unfortunately for the speedy acceptance of this most novel and useful idea, Dr. Vanghetti, though his originality, cleverness, and ability are indisputable, is not a surgeon, but a physician, and for this reason was unable to put his theory into practice. He was therefore forced to resign himself to endless delays before he succeeded in convincing surgeons of the great value and practical possibilities of his theory and obtaining their co-operation, which was indispensable to any adequate test. This was the principal reason why, prior to the war, the cases of cinematic amputations did not number more than twenty.

THE PRINCIPLES OF CINEMATIZATION AND OF "PLASTIC MOTORS."

Dr. Vanghetti has given the name of "cinematic plastics" or "cineplastics" to any kind of bloodless or operative plastics that tends to economize, restore, or substitute those muscular masses that can be employed to impart direct and voluntary movement to an artificial limb.

The word "cinematization" was formerly used to indicate the cineplastic operation; it was subsequently applied to every kind of cinematic artificial limb, and finally to the active and early mobilization of such muscles as are involved in cineplastic operation.

Every moving entity obtained cineplastically, whether bloodlessly or operatively, is called a "plastic motor."

Plastic motors are based on the following general principle: In an amputation or disarticulation, actual or antecedent, the tendon and muscle, provided they have the necessary physiological protection—skin, vessels, nerves, etc.—can generally be used in cinematic prosthesis, on condition that the formation of an artificial point of attachment, to be protected in a similar manner, is available. Cinematization can be effected, or prepared, at the time that the primary amputation is made; it can also be done on stumps that have already healed.

Plastic motors may vary as to their number, position, shape, and function.

Without entering into too detailed a description of the numerous varieties of plastic motors, I will limit myself to stating that, at the present day the most elementary, and, up to now, the most commonly used are, as regards shape, the *clava* (*clavus*, a peg) and *ansa* (a loop) motors, and those obtained by means of the canalizing, or tunnelling, of the muscular masses.

As regards number, the motor may be single, double, or multiple; in function it can be either *unimotor* or *plurimotor*.

When the motor is made to execute two opposite movements in succession, it is called *alternative*.

According to the position they occupy, motors are either *terminal*, when placed at the extremity of the stump, or *extraterminal*, should they be placed in the continuity of the stump.

Down to the present time the upper limb has been more frequently cinematized than the lower, but the number of successful cases of cinematization of the lower limbs is daily increasing.

APPLICATION OF THE PRINCIPLES.

From what I have said, it will be evident that the application of cinematization entails essentially a radical upheaval of all preconceived notions as to the ordinary methods of amputation.

Principles observed in the performance of amputations according to prosthetic criteria have already caused a revolution in modern surgery, but they must again be subjected to modifications in order to ensure the preservation of the greatest possible amount of the original bone and of the residual motor masses and integuments, for these must be used for the preparation of the plastic motor.

In cases where it is practically impossible to perform primary cinematic plastic operations, as, for instance, at the first-aid dressing stations in the full stress of battle, the surgeon can, at any rate, always so operate as to prepare the ground for a future cinematization of the stump. Skin flaps, muscular insertions, various bone and tendinous fragments and segments of limb, which would seem utterly superfluous under ordinary circumstances for the preparation of ordinary stumps, must be recognized to be of the greatest value in view of the future cineplastics.

In order to prevent the possible loss of these elements and of these materials whilst the stump is undergoing the process of healing, it is advisable to take certain special technical precautions to avoid the retraction of the softer tissues; this ought to be done, however, in such a way as not to hinder the ordinary dressing of the wound.

When the inflammation has decreased, and further complications are no longer to be feared, the time has come for the actual cinematization, that is to say, for the preparation of the plastic motor or motors. A plastic motor, in order to fulfil the purpose with which it is made, must conform to the following requirements:

1. It must possess every requisite for withstanding a firm, resisting, and painless grip, and also a traction force that, in not a few instances, may be high.
2. It must be provided with a sufficient amount of muscle masses capable of functional movement to guarantee the accomplishment of the task that will be demanded of them.

The primary conditions for obtaining the first requisites are:

1. That the motors be covered with skin in perfect condition, well nourished, and possessing a normal degree of sensibility.
2. That, with regard to its shape and dimensions, the motor be of a size suitable for the fastening of the hooks, rings, and rods, that are destined to transmit the functional movement to the artificial limb.

* Professor Putti, Professor Pellegrini, and Captain Pieri (Italian Royal Army Medical Corps), delegates to the Inter-allied Conference on the after-care of discharged sailors and soldiers, read papers and gave demonstrations on cinematic amputation and cineplastics in the section of the Conference on surgical treatment. Subsequently, Professor Putti summarized the present position of the subject in an address to the Royal Society of Medicine, the substance of which is here reproduced.

The "Clava" Motor.

The movement masses must be sought for, and obtained from amongst those which the stump still possesses. Such masses as from their anatomical structure and physiological disposition produce broad, strong, and dissociated contractions, are the best adapted to the task. In the choice and distribution of these masses the fundamental principles of the physiology of movement must be thoroughly observed and respected.

As the tendon is the element best adapted for the transmission of muscular contractions, it should be largely employed for the formation of plastic motors. Should the tendon be missing, the muscles must be utilized either by including muscular bundles within the terminal motors, or by tunnelling the muscular masses in order to obtain the extraterminal motors.

The antagonistic force, indispensable to all active movement, must be provided either by the stump itself through the formation of two motors with elements belonging to muscular groups of opposite action, or by the artificial limb by means of elastic resistance in the opposite sense to that given by the plastic motor.

With a view to gaining both space and integument it may be advantageous at times to shorten slightly the bone or bones of the stump, and to excise superfluous muscular masses. This, however, can only be done when the bone is sufficiently long to allow it.

In order to provide such materials as may be missing *in loco*, recourse may be had to the numerous methods that modern plastic surgery places at our disposal, as, for instance, skin, muscular, aponeurotic, or osseous transplantations. Arthroplastics, with the interposition of an aponeurotic flap, may be utilized so as to render mobile those stump segments which, through stiffness and ankylosis, have become unusable. By these same means a new joint can be created in the continuity of the stump, thus giving the plastic motor the power to develop a leverage action.

The cinematization of the thigh stump enables us to solve one of the most difficult prosthetic problems—that of gaining active power over the knee-joint. With the ordinary artificial limbs the knee extension is obtained either by means of springs or of elastics, quite independently of the will of the patient, or else through straps put on the stretch by auxiliary movements of the trunk and shoulder. In some cases we have carried out successful experiments by cinematization of the quadriceps femoris; then the stump itself can control the voluntary extensor movement of the knee, and restrain the flexor movement.

As a result of cinematic plastics we are now able to utilize certain stumps which hitherto have always been held as incapable of functional movement, such as, for instance, carpal stumps, very short stumps, and disarticulation stumps.

The surgeon who, in the case of shoulder disarticulation, succeeds in sparing the deltoid and pectoralis major, in covering these muscles with skin, and in finding means of creating a point of attachment, may be congratulated on having preserved for the benefit of the mutilated man a precious functional capital.

With regard to the difficult problem of utilizing short forearm or short leg stumps, the solution will be enormously facilitated through the preparation of points of attachment that correspond to the insertion of the biceps and patella tendons.

[In order to illustrate the fundamental principles of cineplastics, Professor Putti demonstrated a number of plaster casts of amputated stumps, in which he had prepared different kinds of plastic motors. The first cast was of the stump of a forearm with two terminal motors; one of these had been formed with the tendons of the flexor muscles, the other with the tendons of the extensor muscles. It was a case of disarticulated wrist, and the stump was already completely healed. After excising about an inch and a half of the radius and of the ulna, two cutaneous flaps were prepared, each of which served to cover the two principal groups of tendons in the forearm, that is to say, the flexor and extensor tendons. Professor Putti thus obtained two plastic motors like clumsy fingers, of which one was controlled by the flexor, the other by the extensor muscles.]

Two points of attachment must be provided in these two "fingers," in such a way as to ensure the transmission of their contractions to the artificial limb, with a view to giving movement to the hand. This I obtained by means of metal rings covered with vulcanized rubber placed at the base of the fingers, and gradually tightened; to them the artificial motors of the hand were attached. The stump thus became capable of giving flexor or extensor movements to the artificial hand.

In cases in which it is not possible to obtain sufficient material for the construction of two motors, we must limit ourselves to the preparation of a single motor, the antagonistic movement being provided in the artificial limb by a spring or an elastic.

The "Ansa" Motor.

Another type of plastic motor is that known as the *ansa* motor. In the case from which the cast exhibited was taken, after shortening sufficiently the radius and the ulna, I prepared the tendons of the flexor and extensor muscles, and gathered them together in such a way as to form a ring or loop, which I afterwards covered with skin. Whenever the disabled man contracts either of the two muscular groups, this ring, or loop, displaces itself alternately either in a flexor or in an extensor sense, and the contractions are transmitted to the artificial limb.

The plastic motors so far described are formed of the soft parts of the stump. In order to give greater consistency to the motors they can be provided with a bony support.

ILLUSTRATIVE CASES.

The stump in the first case demonstrated is from a case of disarticulation at the wrist. I formed a para-epiphyseal pseudarthrosis, excising from a third to a fourth of an inch of bone from the shafts of the radius and of the ulna and then interposing a double flap of fascia and of muscle. I was thus able to obtain an artificial wrist having all the movements with which, normally, the wrist is provided, for the muscles and tendons that cause these movements had been, for the greater part, preserved.

I performed a similar operation on the stump of an arm. Having detached a fragment of bone from the extremity of the humerus at the height of about one inch, I interposed a muscular flap between the severed section of the bone. Thanks to the neo-arthrosis, the stump is capable of flexor and extensor movements, for into the piece of severed bone the muscular bodies of the biceps and of the triceps are still inserted.

I believe that these cases sufficiently show the principal types of terminal motors. As regards their preparation, it is nearly always necessary, as I have said, to sacrifice a certain quantity of the stump's original bone. But plastic motors can be obtained without compromising the length of the bone. This is achieved by directly tunnelling the muscular bodies.

In the forearm stump I prepared the group of the flexor superficialis, preserving its normal cutaneous envelope. By a plastic operation I next covered with skin the space comprised between the superficial flexor and the deep flexor, thus creating a canal completely lined with skin. During the period that the wound was healing I maintained this canal open constantly by means of a rubber tube. Once the cutaneous wounds had healed, I inserted a metal rod covered with vulcanized rubber in place of the rubber tube. This little rod serves as point of attachment for the cords used to convey movement to the artificial hand. Following each contraction of the flexor muscles, this small rod displaces itself in a proximal sense, and thus actuates the fingers of the hand.

Arm and thigh stumps are better adapted to this stylo of cinematization than are those of the forearm. I show casts of two stumps of the lower third of the thigh in which I prepared a canal running horizontally and to the full depth of the quadriceps a little above its insertion into the patella. Into the canal I introduced a skin flap folded back over itself in such a way that the cutaneous surface was turned towards the lumen of the canal. The tunnel thus formed is entirely lined with skin, and can withstand, without risk of damage or pain, the presence of the metal rod that serves for the transmission of the extensor movement to the artificial leg.

At the first glance it may appear strange that these mechanical attachments can be so easily tolerated. Experience has proved, however, that if the plastic motor is well placed, if the skin that covers it is healthy, if the

wounds are absolutely healed, neither the rings nor the rods cause the slightest harm. When the *clava* motor is sufficiently long, and its head is large enough, the ring surrounding the neck of the *clava* need not be tightened to such an extent as to interfere with the blood supply of the motor. Moreover, each ring is provided with a screw by means of which the disabled man can himself regulate the pressure.

The disabled men get so accustomed to the metal rod that they leave it in place even at night. The rod must, however, be removed once every twenty-four hours, in order to clean it with alcohol and oil it with vaseline. I have observed that the skin within the canals gradually acquires the property of throwing off sebaceous substances in greater quantities than normal, thus providing for the oiling of the canal.

Functional Results.

Another point deserving consideration is the sensibility of the plastic motors. Professor Amar has made some most interesting physiological researches, showing that the superficial and deep sensibility, and the muscular sense of the stumps, which at first—that is, shortly after the amputation—are greatly altered, not only recover in time, but eventually attain a degree of sensibility superior to the normal, provided the stump is put through the proper functional training. I have observed that the same thing happens with cinematized stumps. One of my patients, on whom I operated over a year ago, is now able to note with considerable exactitude the difference in the size and weight of the articles which he seizes with his artificial hand.

The functional results that can be obtained from a plastic motor depend upon numerous factors, but especially on the cinematic powers of the muscular masses of the stump, on the manner in which the surgeon has found it possible to utilize them, and upon the functional use the motor undergoes. To give a clear conception of the amount of work that a plastic motor can do I may state that amongst the cases operated upon by me the power of the motors ranges from 10 kilogram-centimetres at the lowest to 100 kilogram-centimetres at the highest. For a motor to be of practical use it must be contracted not less than one inch. In the case of a hip stump, I have obtained one motor that contracted to the extent of two and one-fifth inches, lifting a weight of forty-four pounds.

I have only described the principal types of plastic motors. The genius and the ability of the surgeons will find here a vast field of action. Naturally, it is not possible to treat all amputated stumps in this manner. Those that best lend themselves to it are those that include healthy muscular masses, that retain normal innervation, and that possess an ample contractility. Stumps with rigid or ankylosed joints, covered over by skin that does not glide easily, being adherent or creased by a scar, do not supply satisfactory plastic motors. The age, and moral and intellectual condition of the patient are also important. The best age is from twenty to thirty years. Disabled men of insufficient mental development, or those who are not likely to be willing to follow with patience and assiduity the necessary functional training of the stump muscles, ought not to be operated upon.

It is to be understood that cinematization does not invariably require operations with the knife. There are stumps already formed which are endowed spontaneously with cinematic resources that, wisely employed, can be utilized for transmitting movement to the artificial limb. I will content myself with mentioning the wrist and forearm stumps, in which rotary movements are preserved, and the arm and forearm stumps, that possess a terminal hood having a development and contractility sufficient to ensure a good grip.

Construction of Suitable Artificial Limbs.

Whatever type of plastic motors may be chosen, it is an essential condition for their efficient utilization to their full value that the artificial limb be adapted in a manner suitable to their power, their number, and their shape. This question of cinematic prosthesis is so vast and still so new that it deserves a special study to itself. It is now undergoing gradual development and will bring about a substantial reform in ordinary constructive methods. The surgeon, the physiologist, and the mechanic must all collaborate intimately in this work, as only by means of the perfect fusion of these three can we obtain new methods of a really scientific character that will answer modern requirements and replace the empirical systems that have been followed up to now in the manufacture of artificial limbs.

[Professor Putti demonstrated specimens of artificial limbs especially constructed for cinematized stumps. Among others three hands, of which two were made for stumps with a single plastic motor; in one the contraction of the motor is used for opening the hand, which was kept closed by means of a spring; in the other the motor closed the hand. The third hand was made for a stump with a double motor; the movement of closing and opening the fingers was wholly controlled by the two motors. He showed also appliances representing various types of artificial limbs for forearm stumps, and continued as follows:]

The construction of the artificial limb is greatly simplified by the possibility of utilizing the intrinsic powers of the stump. The mechanical contrivances hitherto used for moving the fingers are most elementary; the cords, the levers, and the springs used for conveying movement to the hand by utilizing the movements of the elbow and of the shoulder can now be completely done away with, and the disabled man rendered able to open or close the fingers in any position of the limb. Even workmen's tools can be used in a practical way by the cinematized stump, and a special pincer shaped like a parrot's beak has been devised for the use of workers in metal.

Results.

As to the ultimate results of the cineplastic method, no final judgement is as yet possible, for though the idea was conceived over twenty years ago, cinematization has been applied on a larger scale only since the beginning of this war.

The very few cases of operations of this type performed prior to the war—almost exclusively by Italian surgeons—had afforded sufficient proof of the soundness of methods, but they had not provided enough material to enable us to judge with regard to their practical usefulness. Only since the beginning of the war, when the necessity of giving practical aid to the vast and tragic army of disabled men came to the fore, were our surgeons convinced of the expediency of testing the principles and methods of cinematic surgery. We are yet at the very beginning of this new scientific movement, and the surgeons of all allied nations have not as yet contributed to it.

The German surgeons have followed Sauerbruch's example, and, although they have created an admirable scientific organization, they have limited themselves to the repetition of a single type of plastic motor. Consequently, in analysing the results obtained by them, we can form but a partial judgement of the practical value of cinematization. The number of operations performed by Italian surgeons is probably inferior to those done in Germany, but the variety of the motors experimented upon by us is certainly greater.

It is easily understood that, for the moment, it would be impossible to make a synthesis of such a variety of facts. I therefore believe that it will prove of greater benefit, in discussing the results that have been obtained through cinematization, to consider the question solely and exclusively from the point of view of my own cases.

These number about fifty examples of cinematization of the upper and lower limbs, either primary or secondary; plastic motors of various types were formed, and in each case an artificial limb was applied. The functional value of the motors was studied by dynamographic and dynamometric methods, whilst their practical capacity was tested in the actual use of the artificial limb.

At the Instituto Rizzoli I have at my disposal a large workshop for the construction of artificial limbs, so that I have been enabled to study cinematic prosthesis as well; this, as I have already said, constitutes one of the most important sides of this complex question.

Conclusions.

The researches that have been made in the Institute have brought me to the following conclusions:

I. The practical results that have been obtained through cinematization have convinced me that the hopes aroused by the principles and methods of the modern theory of

plastic motors are thoroughly well grounded. Cinematic plastics are entitled to be placed amongst the most brilliant of the discoveries of orthopaedic surgery, deserve to be accepted with perfect confidence, and to be tested on a large scale by all those whose aim it is to restore to the disabled man his functional activity.

II. The preparation of plastic motors is a well-defined surgical act that must be performed in accordance with its own special methods, which have already stood the test of experience.

III. From a physiological point of view plastic motors have been proved capable of giving both the quality and quantity of action of which the muscular masses that stimulate the said motors are capable. Yet, practically considered, plastic motors will yield the full measure of their value only if the artificial limb is perfectly adapted to their shape and their strength.

IV. As the principal aim of cinematization is to attain the vitalization of the artificial limb, it is essential that the surgeon and the artificial limb maker should work in harmony, in order to solve satisfactorily this most interesting but difficult problem.

Demonstration of Moving Pictures.

Professor Putti exhibited a number of moving pictures to illustrate the results of cinematic amputations. They included arm and forearm stumps with plastic motors, and demonstrated very well the power the man had over single or double (flexor and extensor) plastic motors. In other cases terminal "*ansa*" motors of the forearm were shown, and the power of the patient to lift a weight demonstrated. The films showed both the bare stumps and the same men fitted with artificial arms and hands. Two other films showed cases of cinematization of thigh stumps, plastic motors being obtained by tunnelling the quadriceps femoris. The patients were also shown wearing artificial legs. The ease with which they could raise the limb with the knee in extension, and the advantage the plastic motor gave in walking were clearly shown.

THE RELATION BETWEEN HEAT-STROKE AND MALIGNANT MALARIA.

(Preliminary Note.)

BY

CAPTAIN C. E. H. MILNER, R.A.M.C.(T.F.),

REGISTRAR, — B. G. HOSPITAL, MESOPOTAMIA.

HAVING been intimately connected with the study of heat-stroke and malaria throughout the record heat in Mesopotamia during the summer of 1917, I feel bound to record certain conclusions to which I have been forced as a result of observation.

That there is a close relation between the two conditions is beyond question; and this paper is written (in full consciousness of its heterodoxy, and in confident anticipation of much adverse criticism) in order tentatively, and with all humility, to suggest that heat-stroke as a clinical entity is non-existent, and is nothing more than a symptom, on a hot day, of malignant tertian malaria.

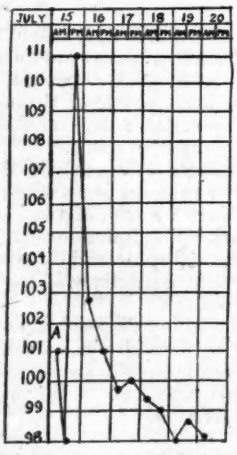


CHART 1.—A, On admission.

One of the clinical pictures with which one soon became familiar was that of a thick-necked, middle-aged man, who would be admitted to hospital, in the cool of the evening, still unconscious, and with a temperature of about 108° F. In his own camp, about middle day, this man would have been seized with sudden headache, vertigo, and unconsciousness—sometimes with violent maniacal delirium. He would have been treated locally by means of cold sponging, and perhaps an ice-pack—for this year (1917) there has been no shortage of ice—and he would have been transferred to hospital as soon as ever the heat of the day were over. (It were certain death to attempt to transfer such a case before 4 in the afternoon at the earliest, with a maximum shade temperature of 125° F., such as we had in July of this year.) Such a case would, on admission, be taken direct to the heat-stroke station and treated symptomatically in the usual routine manner—by means of venesection, infusion, rubbing with ice, and copious ice enemata.

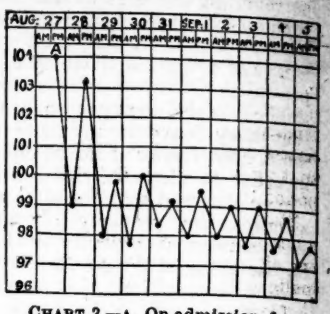


CHART 2.—A, On admission, 6 p.m., the temperature was 108.2°; it did not rise above normal after September 5th.

Another common picture was that in which the heat-stroke "supervened" upon another disease. And in this the characteristic thick-necked, middle-aged, rather alcoholic type was conspicuous by its absence. This time the patient would be already in hospital suffering from some quite other complaint—sandfly fever, dysentery, even malaria itself. And there was no type that one came to recognize as being especially associated with this form of heat-stroke. The patient would feel the heat a great deal in the early afternoon—might even beg one to give him "something to make me sweat, sir," and was almost invariably constipated. One afternoon he would become very restless in bed, and in a very short time unconscious, with a rectal temperature of 108° or 109° F.

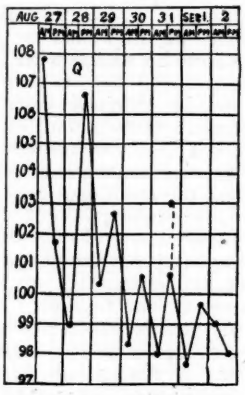


CHART 3.—Q, Quinine gr. x, thrice daily.

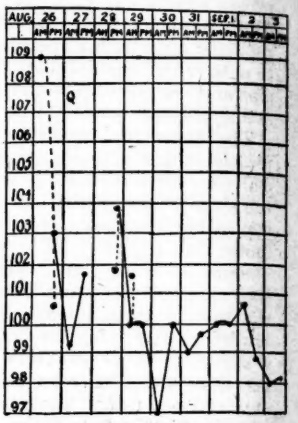


CHART 4.—Q, Quinine gr. xv. thrice daily.

This year there were two formidable heat waves—the one in July and the other in August (1917). It was not until the second of these that it became the custom in this hospital to make an immediate routine examination of a blood film for the presence of malaria parasites. In view of the very high percentage of heat-stroke cases whose blood was found to contain the parasite of malignant

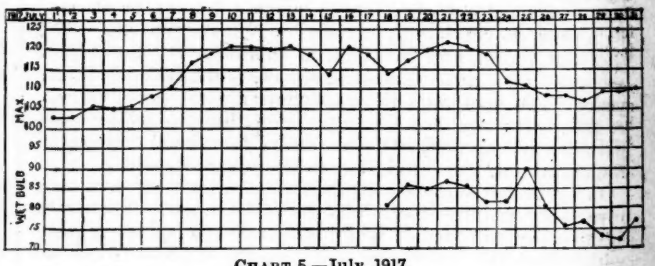


CHART 5.—July, 1917.

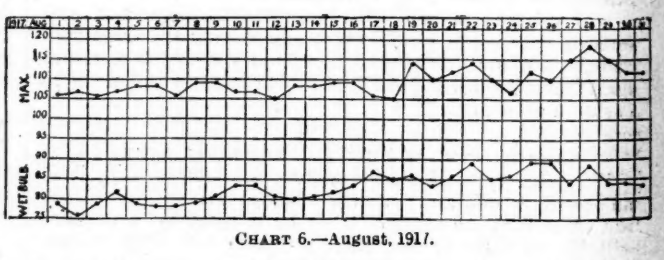


CHART 6.—August, 1917.

tertian, it became the practice during the second heat wave (even before receiving the laboratory report) to administer an intramuscular injection of 8 or 9 grains of bihydrochloride of quinine.

The mortality during July was as high as 25.65 per cent.; that during August, when quinine was always administered immediately, was only 11.76 per cent. This, to my mind, is the most striking factor pointing to malignant malaria as being the primary cause of hyperpyrexial heat-stroke. For it was not until the second heat wave that quinine was given as a routine, and during this period the death-rate fell by well over 50 per cent.

Starting with the physiological assumption that there is a heat-regulating centre, it is reasonable to suppose that one of the symptoms of an infection with the parasite of malignant tertian malaria is the intoxication of this area. It readily follows that, when once the heat-regulating apparatus is upset, the body must naturally assume, as nearly as possible, the temperature of the atmosphere. Thus it is a fallacy to suppose that heat-stroke supervenes if one stops sweating. The truth is, on the contrary, that a patient ceases to perspire because he has got heat-stroke, because he is suffering from paralysis of the heat-regulating centre, due to intoxication by the parasite of malignant tertian malaria.

The clinical charts 1 to 4 will serve to illustrate the marked hyperpyrexia which has been observed even in cases which have recovered, and which have appeared mentally to be none the worse for their illness. All the charts are of cases which were regarded as "heat-stroke," in which were observed the classical symptoms described as being those of heat-stroke, and yet in the blood of each and every case were found the characteristic ring forms of the *Laverania malariae*, the parasite of malignant tertian malaria.

Charts 5 and 6 show the maximum dry and wet bulb thermometer readings for July and August, 1917.

BASAL LEPTO-MENINGITIS RESEMBLING BOTULISM.

By SYDNEY T. STEWARD, M.B., CH.B.,
ASSISTANT MEDICAL OFFICER, INFIRMARY, NEW CROSS, WOLVERHAMPTON.

WHILE so much interest is being aroused by cases which resemble botulism, it may be well to record the particulars of the following case, which for a few days was thought to be that disease:

F. P., a girl aged 5 years, was admitted under my care on May 14th, 1918. There was a history of ten days' previous illness; she had seemed drowsy, and had vomited repeatedly for the first two days. For a month previously she had been feeding on "porridge, bread, sausages, chitterlings, and ham."

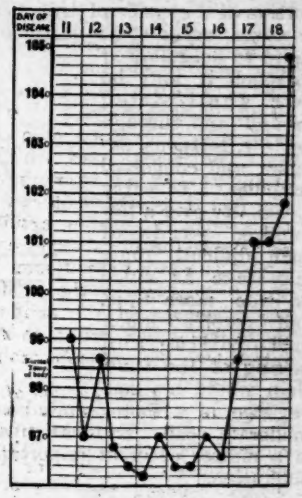
On admission, the temperature was 99° F., the pulse 100, and respirations 20. She was drowsy, but by no means comatose, and realized her surroundings sufficiently to "want to go home." She was very irritable, and complained of pain in the head and back. There was no paralysis; the eyes were kept closed, though she could open them; the pupils were dilated. There was very slight head retraction, but Kernig's sign was absent. The tongue was very foul, and the breath fetid. The bowels had not been open for at least four days previous to admission. She was incontinent of urine. Castor oil was administered without effect.

On May 15th calomel gr. ½ was given hourly for twelve hours, with the result that the bowels were open three times the next day, when she seemed more wideawake and sat up in bed, but was still very refractory and resistive so that the reflexes could not satisfactorily be determined.

On May 17th the respirations assumed a Cheyne-Stokes character, combined with marked slowing—at midday they were only 7. This continued for three days, the respirations never rising above 16 till the evening of May 19th, when they were 20. I performed lumbar puncture in the afternoon; the cerebro-spinal fluid came away under greatly increased pressure; it literally shot out; about 28 c.cm. were removed. Immediate microscopic examination showed it to contain fresh red blood corpuscles, presumably the result of the puncture. The fluid was sent to a pathologist, who discovered no other abnormality in it.

On May 18th there was low delirium; respiration continued slow, the tongue still furred, the head still a little retracted, the pupils still somewhat dilated, and Kernig's sign still absent. There was left-sided facial palsy with inability completely to raise the left upper eyelid. The knee-jerks were absent. At times the child cried out, but not with a typical meningeal cry; at others she lay "as if dead," as the sister put it. From this day onward hexamine in 5-grain doses was given three times a day.

On May 19th she seemed a little improved. Both eyes were well opened, and the facial palsy was much less marked. The mouth was still dry, but she took milk much better. She lay quieter, and her forehead, which hitherto had been constantly wrinkled into a fixed frown, was placid. During the night of May 19th-20th some blood-stained muco-pus came from the nose and mouth. The stench was horrible.



On May 20th she was incontinent of urine and faeces; her brow again assumed the frowning expression, and she cried out continually. The pulse was running and somewhere about 200.

On May 21st the discharge from the nose and mouth continued. The heart was failing, the pulse was still running, about 200, the respirations were 62, and she was deeply cyanosed. Kernig's sign was still absent. At 10 p.m. the chest was full of coarse râles, and there were generalized convulsions. She died a few minutes later, with a temperature of 104.8° F. A morning and evening temperature chart is attached. The four-hourly chart was no further help.

Post-mortem Examination.

The pia mater showed general hyperaemia, whilst over the base of the brain, especially over the optic chiasma, pons, and front part of the medulla, the meninges were swollen, oedematous, and jelly-like. There was no definite pus, though between some of the convolutions there seemed to be a little turbid fluid. On section the brain showed no gross naked-eye changes. The other organs were healthy.

The signs and symptoms which were thought to point to botulism were vomiting, transient facial palsy, transient ptosis, absence of spinal paralyses, drowsiness, absence of temperature, and constipation with dryness of the mouth and nose.

THE EARLY AND EFFECTIVE REDUCTION AND FIXATION OF GUNSHOT FRACTURES OF THE FEMUR.

By O. HERBERT WILLIAMS,
CAPTAIN (TEMPORARY MAJOR) R.A.M.C.(T.F.).

THE adoption of the Thomas splint in the treatment of compound fractures of the femur caused by gunshot wounds has done much to alleviate the suffering resulting from the injury, has saved many lives and limbs, and has led to much improved functional results.

From the casualty clearing station at the front to the general hospitals at the base there is every facility for the application of the splint and the carrying out of the principles which its use entails. In front of the casualty clearing station, however, these facilities are not forthcoming, and the full value of the splint has not been obtained owing to the difficulty of applying simple and efficient first-aid extension.

At the regimental aid post the use of extension by adhesive strapping or glue and calico bandage, applied to the skin, is out of the question; nor is it advisable, having in view the fact that an anaesthetic will have to be administered and an operation performed at the casualty clearing station, to adopt these measures at a field ambulance.

The ideal method of procedure, then, would be to employ so simple a method of extension that it can be applied at, or as near as possible to, the spot where the casualty occurs; and which is at the same time easy and rapid of application, efficient, and need not be changed till the patient is on the operating table at the casualty clearing station.

Before describing any method in detail, it may be well to devote a little time to the following considerations.

(a) Evacuation and the Time Required to Carry a Casualty along a Trench System.

Usually the first point at which effective measures can be taken in the treatment of these cases is at the regimental aid post, which is generally situated at the rear portion of a system of trenches. Most of the casualties, however, occur some distance from this point, and the route to be followed to reach it may be over shell-pitted ground and through narrow, tortuous, angular, and congested trenches. To carry a casualty over a few hundred yards of such difficult route may take as much or even more time, and involve much more jolting and jarring of the limb, than would his conveyance in a motor ambulance over, say, five miles of moderate road. Evacuation along a trench system, then, is a matter of great importance and merits serious consideration.

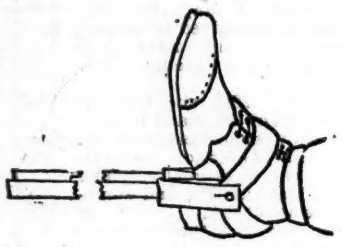


FIG. 1.

(b) Difficulties Peculiar to the Injury Itself.

A fractured femur, of all injuries, is the one that presents most difficulty in transport, unless some effective measures are taken with this object in view. The lower limb, forming as it does a large proportion of the body weight, becomes a large, heavy, and particularly unwieldy mass, which rolls about helplessly, causing most agonizing pain and damage to tissues in the region of the fracture. The upper limb is less bulky and unwieldy, and if injured and helpless the other limb can come to the rescue. This not being the case with the lower limb, early and effective splintage becomes all the more imperative.

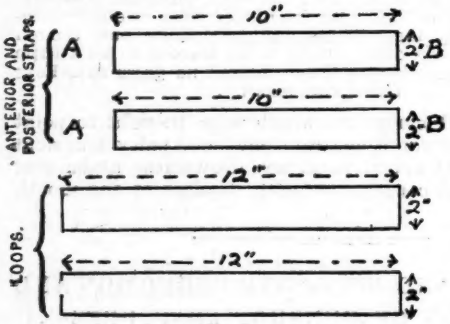


FIG. 3.

(c) The Seriousness of the Injury.

From the point of view of mortality, it should be placed in the same category of urgency as a brain injury or perforating abdominal wound. It requires very little consideration to convince oneself of this. The largest bone in the body is shattered; the missile and the fragments of bone, with their imparted momentum, tear up powerful and massive muscles; even if the main vessels escape injury, there must inevitably be a considerable amount of haemorrhage which escapes out of the wound or infiltrates the tissues, causing the limb to become tense.

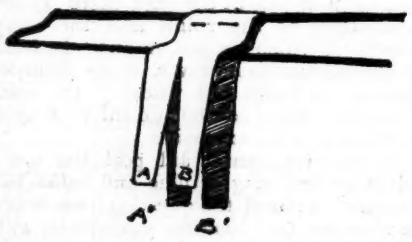


FIG. 5.

(d) The Importance of Applying Extension at the Earliest Possible Moment.

The early complications responsible for the high mortality in these cases are shock and gas gangrene, and they occur in about equal proportions. At no section of the line of evacuation do the causes of these complications act with greater intensity than they do during the regimental stretcher-bearer's "carry" to the regimental aid post. There is gross shortening, with lateral and rotary deformity; the spasm of powerful muscles and the rolling of the limb cause the fragments to grate one upon the other, and vessels and nerves may be wounded. Muscles are prodded and lacerated by sharp fragments; and infective material that has been introduced becomes much more intimately incorporated with the injured tissues. A process of mechanical devitalization takes place during this period that no subsequent measures that may be taken can retrieve.

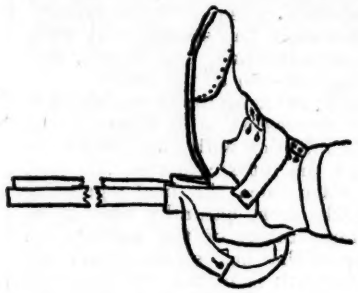


FIG. 2.

First-aid Considerations.

From the foregoing considerations it is obvious that more effective first-aid measures must be taken in front of the regimental aid post, and should, whenever possible, be carried into effect at the place where the casualty occurs. Such measures as tying the injured limb to the sound one, or making extension and counter-extension to the poles of the stretcher are certainly serviceable, but they are far from being effective in the sense of complete extension and immobilization. The measures taken, then, will have to be carried out by the regimental stretcher bearer, and under difficult conditions. They must therefore be simple, effective, and rapid of application.

As has already been indicated, the main difficulty lies in the application of extension, and to overcome this difficulty the brace described below is suggested.

FIG. 4.

THE EXTENSION BRACE.

The brace, which is intended for application over the boot, is made of strong webbing in the form of two Y's, one of which lies on each side of the boot (Figs. 1 and 2). The diverging limbs of the Y's merge into each other so as to form an anterior or dorsal strap in front of the ankle, and a posterior or heel strap behind the ankle. On one side they are fastened together by means of a stud. The stem of each Y forms a loop to which strong cloth strapping is stitched.

Details of Construction.

Strong webbing, similar to the webbing of a small box respirator, 2 in. wide, is used. It is cut into four pieces, two of which are 10 in. long to form the anterior and posterior straps, and two of which are 12 in. long to form the loops (Fig. 3).

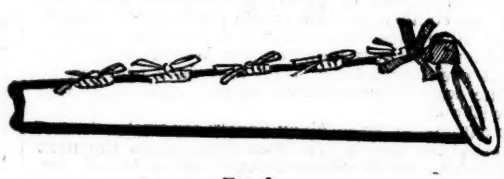


FIG. 6.

The ends A of the anterior and posterior straps are sewn together at an angle of 90 degrees, and the loop is sewn to this junction in such a way as to bisect the angle, and form with strap an angle of 135 degrees (Fig. 4).

Of the ends B, that of the anterior strap is sewn to one end of the loop strap at an angle of 135 degrees, and that of the posterior strap to the other end of the loop strap at a similar angle. A metal stud is placed at the anterior strap-loop junction, and a corresponding stud slit is made at the posterior strap-loop junction. The stud slit must be in line with the loop strap. It is important that the anterior and posterior straps be not longer than 10 in., otherwise the brace does not maintain so effective a grip on the boot.

Three feet of strong cloth strapping, 1½ in. wide, is stitched to each loop to form extension straps.

The advantages of the brace are that:

1. It allows of strong and efficient extension being made with a minimum of discomfort.

2. There is no possibility of it coming off, as the

greater the extending force the tighter and more secure the grip.

3. There is no constriction of the ankle or pressure on the malleoli.

4. The foot is maintained at right angles to the leg, and the limb cannot roll.

5. It can be put in position in two seconds.

6. When not in use, it can be compactly and securely fixed to the splint and so be always available.

I have submitted this brace to Colonel Sir Robert Jones, C.B., and he has expressed his approval of it.

The Slings.

The slings are made of strong calico bandage and five are required for each splint.

To make a sling, take a piece of strong calico bandage 4 in. wide and about 40 in. long. Each piece is doubled on itself and the loop so formed fixed to the inner bar by safety pins or stitching (Fig. 5). The free ends are split into tails of equal width for a distance of about 10 in. and serve for tying to the outer bar. When in use the tail A is tied to A^1 and B to B^1. Three of the slings are supporting, and are placed under the ankle, knee, and thigh respectively; two are fixing, and are placed one above and one below the knee. The latter prevent flexion of the knee and rolling of the limb.

All Thomas splints in advanced medical units should be prepared for immediate use by having the brace compactly fixed to the junction of the ring and inner bar, and the slings fixed, rolled round, and tied to the inner bar, as depicted in Fig. 6.

Application of the Splint.

When the splint is about to be applied the brace is taken off, the slings unrolled and left to hang by the inner bar. One stretcher-bearer applies the brace over the boot and with it extends and rotates the limb into its correct position; this having been done extension is maintained by steady traction on the brace (Fig. 7).

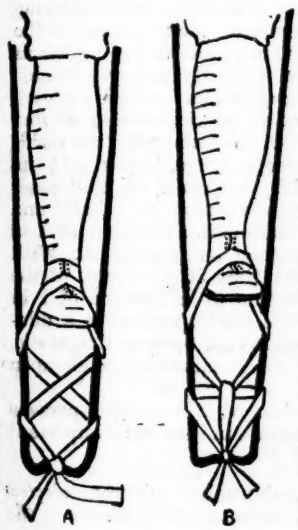


FIG. 9.

No. 2 stretcher-bearer then passes the splint over the brace and boot, No. 1 still maintaining extension, first with one hand then the other, so as to allow of this being done (Fig. 8).

Being satisfied that the ring of the splint is well up into the groin and pressing against the tuber ischii, No. 1 ties the extension straps of the brace to the foot of the splint as described below, and depicted in Fig. 9, A, B.

Pass both extension straps over the bars, cross underneath and then round the bars again to the U loop at the foot of the splint. The straps must pass round the U loop in opposite directions, and be secured by a single knot. One strap is then passed under the crossing (Fig. 9, A), up between it and the sole of the boot, and tightened till the necessary extension is made. The free ends of the straps are now tied off at the U loop. The applied strap then assumes the appearance represented in Fig. 9, B.

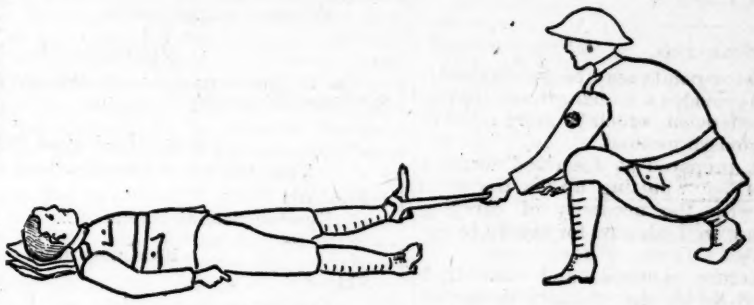


FIG. 7.—Traction applied to brace.

FIG. 8.—Introduction of splint.

The supporting slings are now tied, commencing with the one remote from the wound. This means that the ankle support is tied first and then the knee or thigh support according to the site of the injury. Lastly, the fixing slings are tied above and below the knee (Fig. 10).

The application of the splint only has been described above, and the question of dressings has been left out, in order to simplify the description and because at this stage, unless bleeding is considerable, dressing is of secondary importance to reduction and fixation.

Whether or not the wound should be dressed before the patient is conveyed to the regimental aid post will depend on many factors, such as the number of casualties to be collected, the amount of shelling that is going on at the time, the superficial extent of the injury, and lastly, the amount of haemorrhage.

Except in the last contingency, the dressing should be done last, as it can be done more effectively and with less pain and detriment to the patient after extension and fixation have been secured. Access for dressing is obtained by cutting open the trousers over the site of the wound; the dressing having been applied, it is secured by a bandage passing over the bars of the splint. In this way, should a second dressing be necessary, it can be done without disturbing the extension and fixation.

The patient can now with relative ease be lifted on to the stretcher. The projecting end of the splint is supported on a block of wood, brick, or article of equipment to keep the heel off the canvas.

On arrival at the regimental aid post a suspension bar is fitted on to the stretcher to replace the improvised support, the extension brace is further tightened if necessary, and, should it be deemed advisable, a Jones's gutter-splint or a piece of Gooch splinting is inserted under the ham by loosening the supporting slings, one at a time, and retying them.

The various measures for the prevention of secondary shock are not within the scope of this paper, and mention only will be made of the importance of conserving the body heat by properly adjusted blankets; the application of warmth by hot-water bottles, hot bricks wrapped in sacking, or petrol cans and rum jars filled with hot water; the provision of hot drinks, the administration of a

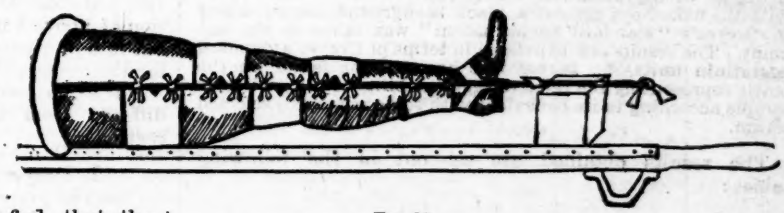


FIG. 10.

hypodermic injection of morphine, and, lastly, speed in evacuation.

In order that a prepared splint may be within easy reach of any part of a trench system in which it may be required, it is suggested that they be taken to the front line; and that one at least should be kept in each stretcher-bearer's dug-out. As each case with a splint is brought to the regimental aid post, a prepared splint is given to the bearers to replace it.

Conclusions.

In conclusion, the following points may be emphasized:

1. The extension brace provides a standardized, simple, and effective means of extension, which is more rapid of application than any improvised method.
2. The Thomas splint, prepared as described, forms a complete armamentarium for "putting up" a fractured femur and does away with the necessity of carrying accessories. It is therefore well adapted for taking to the front line trench.
3. By having the fracture reduced and the limb extended and immobilized before the casualty is carried to the regimental aid post, the process of mechanical devitalization that takes place during this period more than any other in the line of evacuation is reduced to a minimum, and will lead to much improved functional results and reduce the mortality.

I have to thank Captain Edmund Price, R.A.M.C., for the figures illustrating this paper.

AGGLUTINATION IN THE DIAGNOSIS OF DYSENTERY.

BY

Lieut.-Colonel C. J. MARTIN, F.R.S., A.A.M.C.,

Captain P. HARTLEY, R.A.M.C.,

AND

Sister F. E. WILLIAMS, A.A.N.S.

The Value of Agglutination in the Diagnosis of Dysentery caused by B. dysenteriae Shiga and the Mannite-fermenting Group of Dysentery Bacilli respectively.

During the later months of 1917 we tested the agglutination titre of all patients who were suffering or had suffered from dysentery. The examinations were made between the tenth and thirtieth day from the onset of the illness. We also tested the serums of 214 control persons who had not had dysentery, and who had no recollection of having suffered from diarrhoea during the past two years.

Our observations are divided into three groups, as shown in Tables I, II, and III.

Method.

The method employed was that recommended by Major Dreyer, namely, keeping equal volumes of the emulsions and progressive dilutions of the serums in a bath at 55° C. for four and a half hours and reading after fifteen to thirty minutes. The emulsions employed in the first series of our observations were supplied from Professor Dreyer's laboratory at Oxford. A degree of agglutination which could be comfortably seen with the naked eye against a black background corresponding to Dreyer's "standard agglutination" was taken as the end point. The results are expressed in terms of Dreyer's standard agglutinin units[1] by taking into account the factor on the bottle representing the relative agglutinability of the particular sample according to its behaviour with some arbitrarily selected serum.

The results obtained are set out in the following tables:

Table I.—*Observations on the Serum of Patients from whose Stools Dysentery Bacilli were isolated.*

Total number of positive Flexner cases, 151.

Number yielding 5 units	79 =	52	per cent.
,, ,, 7 ,, ...	76 =	50	,,
,, ,, 10 or more units ...	58 =	38	,,

Total number of positive Shiga cases, 13.

Number yielding 5 units	13 =	100	per cent.
,, ,, 7 ,, ...	13 =	100	,,
,, ,, 10 or more units ...	13 =	100	,,

Table II.—*Observations on the Serum of Patients who had Suffered from Dysentery but from whose Stools Dysentery Bacilli were not recovered, nor E. histolytica found.*

Total number of cases of clinical dysentery, 342.

Flexner:			
Number yielding 5 units	76 =	23.4	per cent.*
,, ,, 7 ,, ...	70 =	21.5	,,
,, ,, 10 or more units ...	40 =	12.3	,,
Shiga:			
Number yielding 5 units	17 =	5.0	per cent.
,, ,, 7 ,, ...	17 =	5.0	,,
,, ,, 10 or more units ...	11 =	3.0	,,

* The 17 Shiga cases have been deducted from the total of 342 in calculating the percentages.

Table III.—*Normal Persons.*

Total number of normal serums examined, 214.

Flexner:			
Number yielding 5 units	23 =	10.0	per cent.
,, ,, 7 ,, ...	17 =	8.0	,,
,, ,, 10 or more units ...	5 =	2.5	,,
Shiga:			
Number yielding 5 units	7 =	3.3	per cent.
,, ,, 7 ,, ...	6 =	2.8	,,
,, ,, 10 or more units ...	4 =	2.0	,,

The "Y" emulsion issued by the Standards Laboratory at Oxford was not agglutinated by the serum from patients of this epidemic except in a few cases (see Table IV below).

Table IV.

Group of Cases Examined.	No. of Cases Examined.	Agglutination with "Y" Emulsion.	Per Cent.
Positive Flexner cases ...	102	2	2.0
Clinical dysentery cases ...	172	6	3.5
Normal persons	52	—	—

The serum of normal persons may contain agglutinins to *B. dysenteriae* Shiga and to dysentery organisms of the Flexner-Y group in amount sufficient to cause confusion in diagnosis.[2] Ledingham and Penfold[3] (1915) concluded from their observations that agglutination by dilutions of 1 in 50 in the case of *B. dysenteriae* Shiga and 1 in 200 in that of the Flexner-Y group was significant. An extensive series of observations was undertaken by Ritchie[4] in 1916 in order to determine the degree of agglutination occurring with the serum of normal persons. He investigated the serum of 792 men and women, none of whom, as far as they were aware, had suffered from dysentery. Ritchie used suspensions of living organisms in his experiments, incubated the mixtures of organisms and diluted patient's serum in air at 37° C. for two hours, the result being read off on the microscope stage, using a ⅔ in. objective. He found that 4.6 per cent. of the cases examined agglutinated the Shiga organism at 1 in 64, and considers that complete agglutination in a dilution of 1 in 64 and above should be regarded as diagnostic. With *B. dysenteriae* Flexner he found that 30 per cent. of the cases examined gave agglutination at a dilution of 1 in 128, and concluded that complete agglutination in a dilution of above 1 in 128 should be looked upon as diagnostic, but in a dilution of 1 in 128 or lower cannot be relied upon for diagnostic purposes.

Our experiments on the serum of 214 normal persons differed from those of Ritchie in several important respects:

1. Dreyer's standard agglutinable cultures, *selected on the grounds of their relative insensitiveness to the serum of normal persons*, were used.
2. The standard agglutinable cultures used were formolized, which reduces considerably the agglutinability of dysentery bacilli.
3. The macroscopic method, as recommended by Dreyer, was used.

Using this different technique we found that 10 per cent. of the persons examined contained 5 agglutinin units, 8 per cent. contained 7 agglutinin units, and 2½ per cent.

contained 10 or more agglutinin units to *B. dysenteriae* Flexner. The figures for *B. dysenteriae* Shiga were as follows: 3.3 per cent. contained 5 agglutinin units, 2.8 per cent. contained 7 agglutinin units, and 2 per cent. contained 10 agglutinin units.

Our results, set out in the preceding tables, confirm those of Dreyer, and indicate that, using his method, the presence of 10 or more agglutinin units per cubic centimetre of serum is, for all practical purposes, diagnostic of an active bacillary dysenteric infection caused by the bacillus agglutinated, and that the presence of 7 units is highly suspicious of dysenteric infection. The error introduced on account of the reaction of the serum of normal persons to the standard agglutinable cultures used amounts to 2½ per cent. in the case of *B. dysenteriae* Flexner, and to 2 per cent. in the case of *B. dysenteriae* Shiga infections.

Our group of cases due to infection by *B. dysenteriae* Shiga is small, but it is to be noted that in every case of proved Shiga infection the patient's serum agglutinated the standard agglutinable culture used, and this agglutination was always complete in the highest dilution of the patient's serum tested. As far as our observations go, the results indicate that in the case of infections due to *B. dysenteriae* Shiga determination of the agglutinin content of the patient's serum constitutes a valuable method of diagnosis.

This is, however, far from the case with patients infected by members of the mannite-fermenting group of dysentery bacilli. We tested the serum from 151 cases of dysentery from whose stools bacilli of this group had been isolated, and found that in only 58 did the patient's serum contain 10 or more agglutinin units, that is, less than 40 per cent. of the persons who had recently been infected by a member of the Flexner-Y group exhibited an agglutinin content in the serum of 10 or more units. The low proportion observed might have been due to the fact that in many patients the infection was very mild and the agglutinins produced so small in amount that they were not demonstrable; but in the light of the well ascertained fact that there is a family of mannite-fermenting dysentery bacilli, it appeared more likely that some patients had been infected by one member of the group and others by another.[5] That this latter view is the correct one is suggested by the results of the experiments set out below, which were carried out to investigate this point.

Three strains of *B. dysenteriae* Flexner which had been isolated during this year's epidemic were grown on ordinary nutrient agar for eighteen hours, the growth washed off and emulsified in normal saline, and formalin added to make a concentration of 1 per cent. The formolized emulsions were placed in an ice chest for a week. At the same time a similar formolized emulsion was made from a strain of *B. dysenteriae* Flexner which we obtained from the Lister Institute, and also an emulsion of *B. dysenteriae* Y, which we obtained from the same source.

The agglutinating power of the serum of 40 patients, from the stools of each of whom mannite-fermenting dysentery bacilli had been isolated, was determined against each of the above emulsions and also against Dreyer's standard agglutinable culture (Flexner). The patient's serum was tested at dilutions of 1 in 20, 1 in 40, and 1 in 80 against each of the above strains of *B. dysenteriae* Flexner. It is not possible, of course, to express the results obtained in terms of standard agglutinin units.

In addition to the above series of 40 "positive Flexner" cases, a second series of serums from 40 normal persons was examined in precisely the same way. The mixtures of diluted patient's serum and dysentery emulsions were heated to 55° C. for four and a half hours, and read from fifteen to thirty minutes afterwards.

The "Y" strain used was a direct descendant of Hiss and Russell's original "Y." On being tested against forty samples of normal serums it was found to give standard agglutination at a dilution of 1 in 40 or over in 13 cases—that is, in 32.5 per cent. The figures obtained for this "Y" emulsion have accordingly been excluded from the tables given below, in which the results of these experiments are expressed.

TABLE V.—*The Agglutinating Power of the Serum of 40 Patients from whose Stools B. dysenteriae Flexner had been recovered, Tested against Five Different Strains of B. dysenteriae Flexner.*

Dysentery Emulsion Used.	Number giving Standard Agglutination at 1 in 20 or over.	Per cent. giving Standard Agglutination at 1 in 20 or over.	Number giving Standard Agglutination at 1 in 40 or over.	Per cent. giving Standard Agglutination at 1 in 40 or over.
Dreyer's standard agglutinable culture	19	47.5	16	40.0
Flexner (Lister Institute)	20	50.0	11	27.0
No. 16	18	45.0	15	37.5
No. 65	15	37.5	10	25 0
No. 86	19	47.5	10	25.0

TABLE VI.—*The Agglutinating Power of the Serum of 40 Normal Persons Tested against Five Different Strains of B. dysenteriae Flexner.*

Dysentery Emulsion Used.	Number giving Standard Agglutination at 1 in 20 or over.	Per cent. giving Standard Agglutination at 1 in 20 or over.	Number giving Standard Agglutination at 1 in 40 or over.	Per cent. giving Standard Agglutination at 1 in 40 or over.
Dreyer's standard agglutinable culture	3	7.5	1	2.5
Flexner (Lister Institute)	1	2.5	—	—
No. 16	4	10.0	3	7.5
No. 65	4	10.0	3	7.5
No. 86	2	5	—	—

Of the 40 positive serums tested (Table V)—

11 failed to agglutinate any of the 5 emulsions used;
29 agglutinated one or more of the 5 emulsions used;
2 serums agglutinated all 5 emulsions;
4 serums agglutinated 4 emulsions only;
3 " " 3 " "
7 " " 2 " "
13 " " 1 " "

Of the 13 serums which agglutinated one strain only—

4 serums agglutinated Dreyer's standard agglutinable culture only;
3 serums agglutinated No. 16 only;
3 serums agglutinated No. 65 only;
3 serums agglutinated No. 86 only.

Reference to the figures given in the two preceding tables shows that of the five strains of *B. dysenteriae* Flexner used, Dreyer's standard agglutinable culture gives the most satisfactory results. Yet, even when this strain is used, only 40 per cent. of the cases, from each of which dysentery organisms of the mannite-fermenting group had been recovered, gave a positive result. If the patient's serum is tested against a number of strains, the number of cases giving a positive result increases.

Patient's serum tested against:	Number giving Standard Agglutination at 1 in 40 or over.	Per cent. giving Standard Agglutination at 1 in 40 or over.
Dreyer's standard agglutinable culture only	16	40.0
Dreyer's S.A.C. and Flexner (Lister Institute)	17	42.5
Dreyer's S.A.C. and Flexner (Lister Institute) and No. 16	22	55.0
Dreyer's S.A.C. and Flexner (Lister Institute) and Nos. 16 and 65	26	65.0
Dreyer's S.A.C. and Flexner (Lister Institute) and Nos. 16, 65, and 86	29	72.5

S.A.C. = Standard agglutinable culture.

That is, if the serum of patients who have recently suffered from infection by a member of the Flexner group of dysentery organisms be tested against five strains of the group, the percentage giving a positive result is nearly twice as great as the positive findings when only one strain is used; and it is reasonable to suppose that the number

yielding a positive result would be still further increased if the patient's serum were tested against a still greater number of locally isolated strains.

In conclusion we express our indebtedness to Captain B. G. Klein, R.A.M.C., medical officer in charge of the dysentery wards, for his kind co-operation.

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POST-OPERATIVE PULMONARY EMBOLISM DUE TO THE CONDITION OF THE BLOOD.

BY

A. LAPTHORN SMITH, M.D., M.R.C.S.ENG.,

FORMERLY SURGEON-IN-CHIEF OF THE SAMARITAN HOSPITAL FOR WOMEN, MONTREAL.

OPERATING surgeons all over the world are greatly indebted to the writers of the two very interesting articles on post-operative thrombosis and embolism which appeared in the BRITISH MEDICAL JOURNAL on March 9th and 23rd. With every word in these two articles I most heartily agree—with one exception, and that is, instead of putting the quality of the blood last on the list I would put it first.

Early in my professional career I came under the influence of Sir William Hingston, who pointed out to me the great demands of the human system for water. The kidneys, the skin, the bowels, and the lungs are all calling for it to enable them to carry on their functions. These apply equally to men and women, but in the case of nursing women lactation makes a large additional demand. Some years later I listened for an hour to the scholarly presidential address of Dr. Mathew D. Mann of Buffalo before the American Gynecological Society, in which he pointed out that many of the aches and pains from which women suffered would not have afflicted them if they had been water drinkers. Since then I have seen many women operated on at the Mayo Clinic for gall stones who would never have had them if their bile had not been a supersaturated solution of biliary salts, ready to throw down crystals on the slightest pretext; and I have removed in women many stones from the kidneys and ureters which were due to supersaturation of the urine with solid matter that would never have been formed if the specific gravity of the urine had been kept down. Early in my career as an abdominal surgeon, as well as in consulting obstetrics, I came to the conclusion that the tragic deaths from pulmonary embolism, which at that time were much more frequent than they are now, both after operations and confinements, were due principally to a hyperfibrinous condition of the blood, and all these years I have taken great and laborious pains to see that all these patients were allowed to drink freely.

To this fact more than to anything else do I believe that it is due that I have not yet seen a death from pulmonary embolism following any of my own operations, nor after any of the confinements that I have attended.

The other factor is one to which Colonel Symonds has done a service by calling attention. He says: "Is it necessary to keep the parturient woman on her back for days together?" From his experience after abdominal operations he is inclined to think that early movements of the limbs and frequent changes of position would diminish the number of cases of embolism. My answer is that not only is it not necessary, but positively harmful. The heavy uterus falls backwards and ceases to drain; adhesions form between the ends of the tubes and the peritoneum, and the woman is sometimes never quite well again. We should not only permit, but even urge, the patients to have their position changed frequently during the first few days and to move their limbs freely as soon as they are able to do it themselves. I have always told women after confinement to lie any way they like—right side or left side, or even on the face—rather than on the back. Most important of all is it to sit up on a chamber in bed three or four times a day to pass water and move the bowels. Sir William Hingston, who knew the habits of the Iroquois Indians thoroughly, told me that they were almost absolutely free from the accidents of childbirth common to their white sisters, which he attributed to their not going to bed at all, but continuing the march with the papoose on their back after a few hours' rest.

The only cases of pulmonary embolism in which I have been even remotely interested occurred in the wives of two medical friends in other cities who had had ideal confinements and afebrile recoveries, and yet who died without any warning on the twelfth and fourteenth days at the moment when life seemed at its happiest; another in the wife of a lay friend, who made a perfect recovery, and died suddenly on the fourteenth day. As Colonel Symonds points out, the nurses trained twenty years ago are in favour of the dorsal position for ten days and very little movement; and I may add they were bitterly opposed to the patient being allowed cold water or fresh air for fear of a chill, and sunlight for fear of ophthalmia neonatorum. Our nurses trained to-day are taught that air, water, and sunlight are the great enemies of microbes, and that chills mean fever due to microbic infection. A closed and darkened room generally means a hot room, causing profuse perspiration, which, with lactation, would make the blood less liquid and more liable to clot in the veins. Lying on the back for ten days, with the blood getting daily more clottable, is a very good way to bring about thrombosis and death by embolism when the patient begins to move about.

While it is important to carry out all the suggestions of Dr. McCann and Colonel Symonds, I feel sure that some other factor has been operating silently in their favour, and that is that doctors are urging women to drink water, and nurses are more and more getting in the way of allowing them to do it. It must be in the experience of every accoucheur that what every woman craves for most is a drink, cold preferred. Elderly women who have had large families have assured me that the most unpleasant part of their confinement was the awful ten days of immobility on the back, and, next to that, the thirst. Medical friends who have been operated on have assured me that their greatest desire was a drink of hot tea, and acting on their suggestion I always prescribe it as soon as the patient comes out of the anaesthetic, whether they are vomiting or not. If the first cupful comes up it at least washes out the stomach.

Getting up several times a day to answer the calls of nature will not only ensure drainage of the uterus and vagina, but that and sitting up in bed for meals will prevent the stagnation of the blood, which Colonel Symonds points out is one of the factors in thrombosis. Many practitioners fear to allow the patient to sit up on a chamber for fear of all kinds of things happening—that the uterus may drop out of the body, that it may drop inside out, becoming inverted, or that there will be tremendous haemorrhage; but these are all bogies.

Another friend, Joseph Price, who was assistant to Lawson Tait, told me that he always placed his patients on their right side with their knees drawn up after abdominal sections, and as soon as they were able he allowed them to move about freely in bed, and to stretch and bend their legs frequently. Lawson Tait's idea was to relax the tension on the abdominal stitches, which were silkworm gut and through-and-through.

Pulmonary embolism is fortunately very rare, only 47 deaths having occurred from it at the Mayos Clinic in 63,000 operations. In former days, when the accident was more frequent, it was the custom to prepare the patient by drastic hydragogue catharsis for a day or two before. Then, again, haemorrhage was more frequent and more abundant; also the operating rooms were kept at 80°, so that the patient lost a large amount of water by the skin, while vomiting from the anaesthetic prevented replacement of the lost water. For this last reason I believe that the chances of embolism would be greatly lessened if a rectal enema were given by the slow method at the rate of 20 oz. of beef-tea or salt solution for every half-hour the operation lasts. If given at a temperature of 105° F. it would practically do away with shock and subnormal temperature. I constantly resorted to it while in charge of Lady Wemyss's Hospital in France, with great benefit, as I reported in this JOURNAL two years ago, and I am glad to see by recent reports that it is being more

generally used in the hospitals over there. The reservoir should lie on the foot of the bed or operating table with the patient in the inverted position, so that the water has a fall of only a few inches from the reservoir to the rectum.

Conclusions.

1. Have the full normal proportion of water in the blood before operating.
2. Replace by the rectum the amount of liquid lost by vomiting, catharsis, sweating, haemorrhage, and urine, either during the operation or immediately after it.
3. Encourage the patient to move the lower limbs freely, if not during the first two days at least during the next ten.
4. Give the patient abundance of water between meals and during the night; it may be hot or cold, sweet, sour, or salty, in the form of lemonade, barley water, weak tea without milk, or beef-tea; a jug and drinking cup with spout should be left within reach so that it may be taken when wanted without waiting for the nurse to come.
5. Speedy operating lessens embolism because it means less haemorrhage, and less sweating and less loss of water from the system.
6. Round-pointed needles with flat eyes are much less likely to cause haemorrhage than ones with cutting edges, and should alone be used in the abdomen.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TREATMENT OF ORIENTAL SORE.

AMONGST Indian troops in Mesopotamia, between the months of November and March, it is common to find sores which are chiefly distributed on the extensor aspect of the limbs and face. These sores are characterized by an irregular spreading raised edge, which is often undermined, vascular, and anaesthetic; by a base formed of pale oedematous granulations, slimy in appearance and slightly purulent; and by the chronic condition of the lesions, which may take months to heal. A crust often covers the sore, and at a hasty glance may be mistaken for a dry scab. On pressing the scab beads of pus appear at its edges. The sores are found to contain *Leishmania tropica*, chiefly situated in the undermined edge. They have been treated with hot fomentations, dilute carbolic and mercurial lotions, pure carbolic acid, powdered potassium permanganate, eusol, eupad, and injection with kerosene oil, with merely palliative effect.

The following method of treatment, employed in the ulcerating stage, was originated by Major W. R. J. Scroggie, I.M.S., who has kindly given me permission to publish the results. It has been in use during two winter seasons in a considerable number of cases.

Any undermined edge is cut away, and the surface of the ulcer is cleaned with carbolic lotion, and, if necessary, fomented to remove crusts and discharge. It is then covered with powdered corrosive sublimate obtained from the blue 8¾-grain tablet. It is necessary to powder especially at or under the edge, where the chief infection lies. Care must be taken that the surrounding sound skin is free of powder. A dressing of dry gauze is then applied. Two hours later a hot fomentation is applied, and another at the end of two more hours. For the next two days hot fomentations twice a day are used until the sore presents a clean, bright red, vascular base, with a level or slightly sloping edge. The effect of the perchloride is to permeate every interstice of the wound, and in particular to destroy the infected margin. A short time after its application considerable pain ensues, which may last for twelve hours, but is not sufficient to require morphine. It is necessary to watch the temperature, as occasionally a dry blue scab is formed with pus pent up beneath. This must at once be raised to give exit to discharge. As a rule, fomenting keeps the surface sufficiently moist to allow of drainage of pus. When the surface of the wound is clean, new skin extends from the edges, and gradually covers the wound surface. With a daily dressing of 1 in 2,000 perchloride solution or eusol uninterrupted healing occurs, the time taken depending upon the size of the ulcer and varying from twelve days to six weeks. The scar is smooth and level with the surrounding skin, unlike the raised and thickened scar produced by the use of antimony tartrate ointment.

If the above treatment were systematically carried out from the time of diagnosis, it is possible the length of absence of patients from their units would be materially shortened. In civil life these sores may be borne with little discomfort and interference with daily work, but in the exigencies of military service they form a real cause of ineffectives and their prolonged stay in hospital.

W. S. EVANS,
Captain R.A.M.C.(Temp.).

PERSISTENT VITELLINE DUCT IN TWINS.

MRS. C. was delivered of female twins on April 5th, 1918. The first was a footling, the second a vertex, presentation. There was one sac of membranes. A troublesome prolapse of the cord in the first case may possibly account for the difference in degree of the two cases.

In appearance there was nothing unusual about the cords, which were dry and off on the ninth day. On the tenth day a few drops of bile were observed on the pad of the first born, continuing daily at that amount morning and evening. No faecal matter appeared. The stump of the cord, which was dry and firmly healed, presented in the mesial line, subcentrally, a well marked triangular orifice, which would take a No. 3 catheter. The intestinal orifice must either be very small or protected by a valvular position.

Three days afterwards there was a minute trace of bile on the pad of the later twin, and the umbilicus showed an even more manifest orifice situated similarly.

There has been no constitutional disturbance, but a slight degree of icterus has been present all through in both cases.

In Norris and Dickinson's *Textbook of Obstetrics*, vol. i, p. 118, it is stated that:

> The connexion of the yolk-stalk or vitelline duct with the intestinal canal rapidly becomes less conspicuous, and by the end of the fifth week the yolk-stalk has but slight connexion with the gut. The position of the juncture of the vitelline duct with the intestinal tract varies greatly, but usually corresponds with a point within the small intestine from 40 to 60 centimetres (16 to 24 inches) from the ileo-caecal valve. When the usually atrophic cord is replaced by a tubular recess, the persistent portion of the duct constitutes Meckel's diverticulum, a structure of interest. The vitelline duct may remain pervious throughout its intra-embryonal extent, resulting sometimes in congenital umbilical fistula.

That the condition should occur in twins must be uncommon, but not to be marvelled at when one calls to mind that these are likely to be homologous twins, so that the vitelline ducts of each developed from common parent blastodermic cells, and inherited in equal degree the tendency to persist.

Kingstown. J. R. GARRATT, M.D.

THE TREATMENT OF PERNICIOUS ANAEMIA.

I THINK it may be of interest to record a case of pernicious anaemia treated by intramuscular injections of salvarsan cream. My patient, a woman aged 39, had suffered from pernicious anaemia, showing all the usual blood changes and general signs and symptoms, for over two years. In spite of several temporary remissions the disease steadily progressed, and in November last she appeared to be dying. The liver reached to the umbilicus, and there was a loud haemic murmur over the heart. The usual blood changes were present and the haemoglobin content 15 per cent. I gave her an injection of 0.2 gram salvarsan cream (prepared from "Kharsivan" brand salvarsan by Messrs. Allen and Hanbury) into the muscle of the buttock (as suggested in the BRITISH MEDICAL JOURNAL in 1912 and 1913), repeating the same dose in a fortnight, and another of 0.3 gram a fortnight later. The result was really extraordinary. Within a few weeks she regained her usual healthy colour, the liver returned to its normal size, the haemic murmur disappeared, and the haemoglobin content rose to 85 per cent. She is now, six months after commencing the injections, apparently in normal health. Whether the recovery is permanent I cannot say, but a line of treatment followed by such remarkable results in such a hopeless disease is worth recording, and I hope that this brief note will lead to its further trial.

London, W. R. THORNE THORNE, M.D.

Reports of Societies.

THE ROLANDIC AREA IN THE INSANE.

The ordinary quarterly meeting of the Medico-Psychological Association of Great Britain and Ireland was held on May 28th, when Lieut.-Colonel D. G. Thomson, R.A.M.C., was in the chair. Dr. John Turner gave an account, illustrated by a number of fine drawings, of researches into the Rolandic area in the insane. The anterior lip of the fissure of Rolando, that part of the cortex termed ascending frontal, was characterized, histologically, in its upper two-thirds by the presence of very large nerve cells which, from their size and the peculiarities of their structure, lent themselves readily to the study of pathological changes. Physiologically, this region represented the chief executive station of the brain—that whence the greater part of the nervous currents passed on their way from the brain to the muscles. Insanity was not only disorder of motive in conduct, but also disorder in execution, as was vividly exemplified in dementia praecox, though all forms of mental disorder were characterized by mannerisms and affectations of speech and behaviour. He thought it probable that if there were anatomical changes in insanity they would show themselves in this region. He had been impressed with the peculiar form of Betz cell found in the brain of the insane, and in 1914 compared the picture as seen in the cortex of the insane with that in a corresponding area from a series of brains of persons dying in two large London hospitals. In the cases from the ordinary hospitals he found the prevalence of what might be called the insane type much less marked. He now presented a study of the configuration and micrometry of the cortex in the Rolandic area for the purpose of ascertaining whether there was deficiency or atrophy in the depth of any of the laminae in the different forms of insanity. A further object was to ascertain whether the particular form of Betz cell described was maintained in the areas controlling the muscles of the remaining part of the lower extremities, of the upper extremities, or of the face. In addition, he attempted to correlate differences in the internal structure of the Betz cells with symptoms. Having described in detail the technique employed, he divided the cases which he had examined into three classes: (1) All cases of acquired insanity, (2) cases of dementia praecox, (3) imbeciles, whether suffering from epilepsy or not. The second class he particularized; dementia praecox he regarded as denoting more a temperament than a disease, including therein inefficients of all kinds, not alone those within asylum walls, but all whose nervous system was of deficient durability and therefore liable to break down under comparatively slight stresses. Though some of these persons made a decent livelihood, and some seemed to be of quite average ability, they yet possessed what Adolf Meyer termed the hall-mark—namely, a constitutional inability to meet their difficulties in an adequate manner. He set out his conclusions under the following four heads:

1. Anomalies in the form of the Rolandic fissure, and in the arrangement or architecture of its cortex, occurred more frequently among the insane, especially among subjects of dementia praecox, and imbeciles, than in normal individuals.

2. There appeared to be distinctive characters in the two sexes.

3. Micrometric studies indicated sexual differences in the width of the laminae; they failed to afford any clue to a solution of the problem of the pathology of insanity.

4. A study of the Betz cells he believed to be of very real assistance in the matter. The undue proportion of the axonal type in the insane enabled a glimpse to be obtained of the anatomical basis in a large number of cases. He regarded this type of cell as one of defective structure, and probably of deficient durability, and that the evidence favoured the view that it was an innate defect due to arrested development. The presence of this type in greater or less number he regarded as a rough index of the stability of any given brain; other things being equal, a brain with a high percentage of these cells would more readily break down than a brain with a low percentage. On this view, the brain of the precocious dement was the most unstable of all, and, relatively, more so in females than in males. This he considered to be in accord with clinical experience.

Reviews.

RADIO-THERAPEUTICS.

The second volume of the new edition of Knox's book on *Radiography and Radio-Therapeutics*[1] deals with the second subject. The general arrangement is practically the same as in the first edition, but the 130 pages of that edition have been extended to slightly over 200, and a large number of illustrations added. An introductory chapter deals mainly with the action of radiations upon tissues, both normal tissues and morbid growths; it is illustrated by a series of photomicrographs which demonstrate very fully the changes produced by both *x* rays and radium.

In discussing the question of the so-called "selective action" of radium on cancer cells the author suggests that the word "selective" is badly used, and points out that all living cells are influenced in varying degree according to the resistance of the particular cell in question. Thus, young and actively growing cells are more readily influenced than mature cells, and cells of new growths approximate in structure and power of resistance to the actively growing cells of a tissue. "Selective absorption" of radiations by the tissues is a better term, and this is applicable to all forms of radiation.

The dangers attendant on the use of *x* rays and radium are discussed under the headings of acute and chronic dermatitis, late manifestations, and sterility, with reference both to operators and to patients. We are fully in agreement with the suggestion that there is a possibility of danger to an operator from the secondary radiations from the protective materials applied to his own person. The ordinary *x*-ray proof gloves worn on the hands of those workers who have already had some amount of dermatitis may be a source of danger rather than protection.

The chapter on *x*-ray therapeutics is comprehensive. Starting with a description of methods of protection, the necessary *x*-ray generating apparatus is described in detail, and following this is a very useful and full account of the various methods of estimating dosage. Filtration is an important subject; the writer expresses his conviction that the results obtained when using aluminium filters have been better than with boiler felt or other materials. An interesting table of the comparative values of different filters is given.

The various conditions—skin, growths, uterine fibroids, and so on—in which *x*-ray treatment is indicated are set out, and the application of the method to ringworm is well described and illustrated. In discussing the *x*-ray treatment of exophthalmic goitre the opinion is expressed that it should have a trial in all cases, even when operation is contemplated; but in, at any rate, the acute cases it must be combined with rest in bed, dietetic and drug treatment.

Phillips is responsible for the description of the physics of radium in a chapter which is simple, easy to understand, and practical. The preparation of radium emanation, and the manner in which this slowly decays in strength, are especially good.

This is followed by a chapter on the practical application of radium to disease and the various methods of using it, and the forms of applicators indicated in various conditions and sites. The illustrations of this chapter are valuable. The combined use of radium and *x* rays in the treatment of malignant disease gives the author an opportunity of contrasting the possibilities of the one and the other. It is suggested that in some instances it is advantageous to alternate their use. The war has been responsible for an additional chapter, and Cole's work on the value of radiations in the plastic surgery of the face and neck is very striking. The cases of keloid scars following on bad wounds of the face and neck show, as is demonstrated by many illustrations, very remarkable cosmetic results.

[1] *Radiography and Radio-Therapeutics*. Part II. *Radio-Therapeutics*. By Robert Knox, M.D.Edin., M.R.C.S.Eng., L.R.C.P.Lond. Second edition. London: A. and C. Black. 1918. (Sup. roy. 8vo. pp. 387 to 606; 100 figures, 15 plates. 15s. net.)

Dr. Knox is to be congratulated as having produced a book far in advance of any other which has appeared on these subjects. The letterpress is clear and concise, and practical to the last degree. Nothing of any importance has been omitted. The many illustrations, without exception, are very fine and well chosen. As a whole—that is, the two volumes together—it should remain the standard textbook in the English language for many years to come, useful alike to medical practitioners, to specialists in *x*-ray and radium work, and to students.

MEDICAL DISEASES OF THE WAR.

As anticipated in the review of Dr. A. F. HURST'S *Medical Diseases of the War*[2] in our issue of March 17th, 1917, a second edition has soon been required, but the present volume is much more than a revised edition, for it is over twice the size, and has increased correspondingly in price. The original chapter on war neuroses has been expanded into eleven, and as Part I of the work occupies nearly half the volume. These chapters show the author's growing experience at Netley and elsewhere, especially as regards the difficult subject of treatment; they now contain a classification of functional disorders in soldiers which it was previously considered inadvisable to attempt. Clearly and attractively written, this work breathes the atmosphere of practical experience and accurate thought, and at the same time the conclusions of Crile, Mott, Buzzard, and others are brought before the reader. Babinski's condemnation of the doctrine of hysterical stigmata, such as anaesthesia and restriction of the field of vision, which he considers are always due to suggestion by the examining medical man, is endorsed by Dr. Hurst. While admitting the existence of Babinski and Froment's reflex paralysis, he considers that the distinction between it and hysteria is much less clearly defined than these authors assume; thus, at first the symptoms may be reflex but subsequently become hysterical from auto-suggestion, and further, some cases of reputed reflex paralysis may be really local tetanus.

The use of hypnotic suggestion is fully discussed, but its limitations are indicated, and it is admitted that it is generally not the most satisfactory treatment for hysterical contractures, gaits, or speech defects. In the diagnosis between organic and hysterical or simulated deafness almost all the tests formerly recognized have been discarded, the only criterion regarded as trustworthy being the presence of normal vestibular reactions in hysterical deafness and their loss in the organic form.

The new chapter on tetanus contains a good account of the localized form, of which head tetanus was the only variety recognized before the war. A fatal case of anaphylaxis due to injection of antidysenteric serum is mentioned, and with regard to its prevention in the serum treatment of tetanus Besredka's plan of giving it under general anaesthesia is recommended. It is interesting to note that Major Hurst does not consider that in diminishing the exaggerated reflex excitability of the central nervous system in tetanus magnesium sulphate has any advantages over drugs, such as chloretone, which have none of the dangers attending the injection of the magnesium salt.

Although malaria played such an important part in the Salonica campaign it is not specially considered, but perhaps this may be a feature of a further edition which may be confidently predicted for this excellent work.

NOTES ON BOOKS.

Hints for R.A.M.C. Officers[3] is a modest little work which many newly joined medical officers will find helpful during the first few weeks of army life. The main duties of a medical officer in charge of troops at home are clearly indicated, and useful guidance is given through the maze of army technicalities and regulations as to correspondence and reports. We have seldom seen so many misprints, or such an elaborate index, in so small a work. Under the heading of "kit," we note with amusement that "the greatcoat has been suspended for the duration of the war."

[2] *Medical Diseases of the War.* By Arthur F. Hurst, M.A., M.D.Oxon., F.R.C.P., temporary Major R.A.M.C. Second edition, revised and enlarged. London: Edwin Arnold. 1918. (Demy 8vo, pp. 319; 6 figures. 12s. 6d. net.)

[3] *Hints for R.A.M.C. Officers.* By Ramcorps. Edinburgh: W. Bryce. 1918. (5¼ × 4¼ in., pp. 56. 1s. net.)

Any sound guide to exposure of the deep vessels by safe routes which give ample access, will be welcome to all war surgeons, not only those who need to make such incisions for dealing with actual haemorrhage, but also those at the base hospitals who have to operate upon arterial haematomata and aneurysms. MM. FIOLLE and DELMAS have written a little book[4] up at the front and have found on the spot an artist to enhance the value of their descriptions. The authors have by no means lost reverence for Farabeuf and indeed are not trenching on his preserves, for he gave us the classical directions for ligature of sound vessels in their continuity; they are dealing with the exposure of bleeding vessels in the midst of infiltrated, blood-obscured tissues, and offer a means of isolating the very bleeding point without undue damage to intervening structures, in such a way that blind grasping of a bleeding area in forceps—which has befallen every one to his discomfiture—shall be unnecessary even in emergency. It is not to be thought that even the modes of access here suggested are simple, and it is certain that they should be practised on the cadaver, to ensure freedom in their employment at the moment of need. The book is to be heartily commended for general study forthwith.

[4] *Découverte des Vaisseaux Profonds par des Voies d'Accès Larges.* By J. Fiolle and J. Delmas, Chirurgiens à l'Automobile Chirurgicale, 21. Paris: Masson et Cie. 1917. (Demy 8vo, pp. 128; 34 figures. Fr. 5).

THE MEDICAL PROFESSION UNDER THE MILITARY SERVICE ACT.

IN our last issue (p. 622) we gave a short account of the regulations which have been made with regard to applications concerning medical practitioners for exemption from military service, and of the procedure contemplated under these regulations. By the time these words are in print it is expected that an explanatory statement by the Ministry of National Service will be in the hands of every doctor now in civilian practice. In the meanwhile we have received various inquiries from medical men who are in doubt as to how they stand. Our reading of the position is broadly as follows:

Every doctor of military age will be approached in the first instance by the Ministry of National Service, which will offer him a "certificate of protection" from military service under the conditions stated in the proviso to Regulation 24 (see BRITISH MEDICAL JOURNAL, June 1st, p. 622, second column). If he is not satisfied with the terms of this certificate he may, within fourteen days of receiving notice from the Ministry, lodge an application for exemption with the appropriate medical tribunal (the Central Medical War Committee, and the Scottish Medical Service Emergency Committee have been recognized as Medical Tribunals). The tribunal will in due course hear his case and adjudicate on it, giving him four clear days' notice of the hearing. The tribunal may refuse exemption from military service, or may grant absolute, temporary, or conditional exemption. Where the ground of exemption is occupational the tribunal will be enabled to grant conditional exemption only, the condition being that the doctor, if not required for medical service with His Majesty's forces, shall give his service to the civil community in such manner and under such conditions as the Minister of National Service, after consulting the appropriate professional committee, deems best in the national interest. The principles by which the Committee of Reference will be guided may be gathered from the terms of the communication from it printed below.

An appeal may be allowed to the Central Tribunal (the general tribunal for the whole kingdom) from the decision of the medical tribunal (or the Committee of Reference) on any application on personal grounds—that is, on the grounds of serious hardship, of ill health or infirmity, or of conscientious objection. But such appeal may be made only with the leave of the medical tribunal or on the recommendation of the Committee of Reference.

The usual form of exemption granted by a medical tribunal will be subject to the conditions laid down in the proviso to Regulation 24. But since the protection certificate issued by the Ministry of National Service will be subject to the same conditions, the position of a doctor who has accepted a protection certificate and of one who, having made application to the medical tribunal, has received conditional exemption, will, in the majority of cases, be the same.

From this point onwards the central professional committee ceases to act as a statutory tribunal, and becomes an advisory body to the Minister of National Service respecting the use to be made of those doctors who have received either conditional protection or conditional exemption as the case may be. The country will be investigated area by area, the local committees assisting the central committee. A doctor who is not satisfied with the duties proposed to be assigned to him will have a right to be heard by the central committee, just as an enrolled man has had in the past, and the grounds of objection will presumably be much the same as those which have been held to be valid in the past, though they are not, and never have been, precisely defined.

With regard to the terms and conditions of substitution medical service, we understand that this is receiving close consideration. It is obvious that no effective procedure can be laid down until the financial basis has been settled. The question has been asked: To what body could a doctor apply for liberation if his health broke down in substituted practice? The only answer seems to be that those who put him there must be responsible—namely, the Ministry of National Service "in consultation with the medical tribunal, and in concert with any Government department concerned." This, and many other points, will have to be settled at an early date.

In a circular (R. 196) addressed by the Secretary of the Local Government Board to the Central Medical War Committee, the Committee of Reference, and the Central Tribunal, dealing with the new regulations, special reference is made to Regulation 24, which provides that any exemption on the grounds of occupation shall, and any exemption on personal grounds may, be conditional on the medical practitioner undertaking professional service under conditions laid down by the Director-General of National Service after consultation with the medical tribunal, and in concert with any Government department concerned. Upon this the circular says:

> The demand for medical practitioners for military and civilian service is so great that it is only by a carefully considered distribution of the available medical men that the requirements of the country can be met. This has been recognized by the medical profession itself in resolutions passed by their representatives. It is because of this special position of the medical profession that the provision referred to above has been made; and it is because of this special position, also, that the profession is granted a special tribunal drawn from its own members.

The President of the Local Government Board is assured that the regulation in question will be administered with the utmost consideration consistently with the national interests, and that any arrangements under it will be made in full consultation with the medical tribunal. The circular concludes as follows:

> Mr. Fisher realizes that the task before the medical tribunal and the Committee of Reference is a formidable one, but their members have already gained wide experience in the work. The country generally, and not only the medical profession, are indebted to them for their services; and it is noteworthy with what general satisfaction the performance of these services has been received. They are justified, therefore, in approaching with confidence the work which lies before them.

With regard to applications concerning medical practitioners made to ordinary local appeal tribunals which were pending at the date (May 23rd) when the regulations for medical men came into force, it is provided that if the case has already been referred to the professional committee and a recommendation has been made, it shall be decided by the appropriate medical tribunal in accordance with the previous regulations. If, however, a recommendation has not been made, the case is to be referred to the medical tribunal, to be decided as if it were an application under the new regulations.

In a memorandum (R. 198) issued to ordinary local and appeal tribunals, the Local Government Board points out that such tribunals will not in future deal with any application concerning a medical practitioner, whether an original application for a certificate of exemption, or an application for the renewal or review of a certificate already granted. Such applications are to be made directly to the appropriate medical tribunal, in accordance with the special regulations relating to medical practitioners.

Redistribution of Hospital Staffs in London.

We have received from the Committee of Reference the following notification as to action proposed to be taken by the Minister of National Service:

The Minister of National Service has approved a recommendation of the Committee of Reference that, in order to provide more doctors for service in the army whilst at the same time safeguarding the interests of the civil community, the hospitals in the London area shall be arranged in groups and that a sufficient staff of doctors shall be reserved to maintain the medical service of each group.

It will be recognized that many physicians and surgeons are now serving at hospitals in various parts of London involving long journeys, waste of time, and, consequently, loss of energy, and that at the same time there are others both of military age and over that age who are capable of doing and willing to do more hospital work than they are now doing.

It is proposed in the first place to ask every member of the staff of a hospital to supply the Committee of Reference with a detailed statement of the hospital work and other work of a national character which he is now fulfilling, on a form which will be sent him for the purpose. This information will be tabulated and an analysis made of the amount of service rendered by each member of a hospital staff. From this analysis the Committee will be in a position to advise the Minister of National Service as to the number of doctors of military age who must be considered indispensable to the civil community, and who should in consequence be retained in civil practice.

It may be necessary, in order to obtain the fullest benefit of a doctor's service, to transfer his work from a hospital in one group to a hospital in another group, as a temporary arrangement for the duration of the war, and for this reason each doctor will be asked to sign a declaration that if it is considered desirable in the national interest, he will agree to serve on the staff of any hospital or hospitals to which he may be assigned by the Minister of National Service on the recommendation of the Committee, and at the same time to discontinue his services at any hospital where he may now be acting as a member of the staff.

An appeal will be made to those members of hospital staffs who are over military age, to those who hold *à la suite* commissions in H.M. army, and to those who have been medically rejected for service in the army, or are otherwise excepted from liability under the Military Service Acts, to assist by their co-operation in making this scheme a success.

It is recognized that the reorganization of the medical staffs may cause inconvenience to the governors and officials of the various hospitals, but it is not intended that any alterations of staff shall be proposed beyond those considered by the Minister of National Service on the advice of the Committee to be absolutely essential in the national interests.

Addresses.

The address of the Medical Tribunal for England and Wales is 429, Strand, London, W.C.2, and for Scotland the Royal College of Physicians, 9, Queen Street, Edinburgh. That of the Committee of Reference is 8–11, Queen Square, London, W.C.1.

We print in our correspondence columns this week a communication from the Council of the Edinburgh Branch of the British Medical Association strongly opposing the exercise of compulsory powers for the provision of medical attendance on the civil population.

At the annual meeting of the National Medical Union, held on June 1st, Professor William Russell presiding, it was unanimously resolved to advise members of the union not to sign any application for exemption under the new Military Service Act, since to do so might render them liable to be transferred to other localities. The meeting also unanimously confirmed and adopted a resolution of its council approving the principle of compulsory medical service of a purely military nature, but strongly condemning any attempt to extend compulsion in respect of civilian practice.

The first general meeting since the outbreak of war of the Association of French Doctors was held on April 28th, when it was announced that subscriptions to the special war fund amounted to nearly £38,000, and that of this £6,000 had been expended in grants to practitioners in invaded territory and their families. It was announced that the legacy of Dr. and Madame Dard, of Dijon, to the widow and orphan fund, amounting to £40,000, had been paid over.

British Medical Journal.

SATURDAY, JUNE 8TH, 1918.

A MINISTRY OF HEALTH AND THE FUTURE OF MEDICINE.

A SHORT time ago the Royal College of Physicians of London appointed a committee to report upon the proposals for the establishment of a Ministry of Health. At its meeting on June 3rd it received an interim report from this committee recommending that steps should be taken for the formation with other bodies of a small joint committee on the subject. This recommendation was accepted, and it was further resolved that the joint committee should have power to communicate when necessary with the Government, and to inform it on any part of the subject, reporting its action from time to time to the College. We imagine it to be probable that the Council of the Royal College of Surgeons of England will be disposed to take part in setting up the joint committee, which on matters of administrative detail may find it expedient to enlist the help of experts in public health and general clinical practice. The Scottish Royal Colleges have already set forth their views, but severally and independently, and the joint action proposed in London possesses certain obvious advantages which will be appreciated by the Government and Parliament. A collective expression of opinion must not only be convenient but more likely to carry weight.

It may be assumed that the interest of the Colleges in the proposal for a Ministry of Health is mainly in respect of medical education and the advancement of medicine by observation and research. Sir William Osler in his contribution (p. 653) to the discussion at the Royal Society of Medicine, which has been again adjourned, laid due stress upon this aspect of the matter, instancing the need for the reconstruction of medical schools, the "destruction" of the curriculum, the abolition of unnecessary examinations, and the establishment of up-to-date clinics at the hospitals. He promised that when the younger men returned from the war and took the matter in hand the seniors would stand by and see fair play between them and the authorities, and we imagine that the services of the judicious bottle-holder will be required in the contest that must inevitably take place. The British Medical Association, which must look at the matter from a somewhat different point of view, will, we have no doubt, welcome the proposed joint committee in London as a valuable reinforcement in dealing with the legislature, and as a justification of its contention that the trend of public opinion which found its first expression in the Insurance Act, and is now giving speed to the proposal for a Ministry of Health, is one which nearly concerns every branch of the profession. The pamphlet[1] issued by the British Medical Association a short time ago, giving reasons for the establishment of a Ministry of Health as one of the principal departments of state, together with a scheme of constitution proposed by the Association, has done something to show the hollowness of some of the talk about the complexity of our system of treating and preventing disease and the multiplicity of Government departments interested in health questions. While pointing out the directions in which the system might be simplified, the pamphlet showed that administration is necessarily complex, because the natural conditions are complex, and that there are many ministries which ought to be able to command the advice of experts, because government is concerned with the proper ordering of human affairs, which are unceasingly affected by the ill or good health of the governed.

In all the recent deluge of talk on public platforms as to the need for a Ministry of Health we can recall little suggesting that the orators had given any thought to the production of the medical hands with which the Ministry of Health must work and without which it would be as helpless as an engine without an engineer. A good deal of lip service to the wonderful advances of medical science was mixed with reproaches against the medical profession that it had not more quickly applied them for the prevention of disease and the promotion of health, but very little anxiety was shown to organize methods for the advancement of medicine and the improvement of medical education. The reports of the two committees to the Prime Minister on the position of natural science[2] and of modern languages and modern studies[3] in the educational system of Great Britain marked a very distinct stage in the growth of opinion, and their recommendations, which appear to command the sympathy of the Board of Education, cannot fail to have a very considerable effect before long on the subjects and the methods of secondary and higher education. The ground is therefore well prepared for any action which the joint committee proposed by the Royal College of Physicians may advise with regard to medical education and medical schools. It is to be noted also that through the establishment of the Advisory Council of Scientific Experts to administer the Imperial Trust for the Encouragement of Scientific and Industrial Research, and in the existence of the Medical Research Committee, we have the elements of a Ministry of Science.

On the other hand, there are the administrative questions with which the pamphlet of the British Medical Association is mainly concerned. On many of these also the value of the opinions of the Royal Colleges will be considerable, especially on all matters concerned with hospitals, and the connexion which should exist between them and the medical schools on the one hand, and general practitioners on the other. On these accounts the step taken by the Royal College of Physicians of London is a matter for congratulation.

[1] *A Ministry of Health.* London: The British Medical Association. Price 3d.

THE NERVOUS TEMPERAMENT IN WAR.

MUCH interest has been excited recently in France by Professor Ernest Dupré's description of a type of psychoneurosis which he would sharply distinguish from neurasthenia on the one hand and hysteria on the other. The interest is due to the belief that the type he has described is a definite clinical entity, and that its recognition will prevent injustice, especially to soldiers. He first published his description in 1910–11, but his papers attracted little attention until Dr. Maurice de Fleury, who had begun to recognize that the type was not uncommon among the cases coming before him during the last two years at the psychiatric clinic of the military hospital of Val de Grâce, brought the matter before the Académie

[2] The Position of Natural Science (Cd. 9011, price 9d.), BRITISH MEDICAL JOURNAL, April 20th, 1918, p. 459.

[3] The Position of Modern Languages (Cd. 9036, price 9d.), BRITISH MEDICAL JOURNAL, May 18th, 1918, p. 567.

de Médecine a month or two ago.[1] Soon afterwards Dupré himself communicated a very concise paper[2] to that learned body, of which a fortnight later he was elected a member by a very large majority.

He uses the not very happy term *constitution émotive* for the condition, and describes it as characterized by over-excitability, both sensory and psychic, and imperfect motor inhibition, both reflex and voluntary, so that reactions are abnormal in degree, extent, duration, and in their relation to the stimulus. It is not a traumatic neurosis, inasmuch as it may persist from childhood, but the onset of the symptoms in their fully developed form is usually determined by commotion or emotion intense in degree, or frequently repeated, or by an infection or toxaemia. The psychological signs, which according to Dupré form the groundwork of the condition, are undue impressionability, nervousness, restlessness, anxiety, irritability, and impulsiveness, occurring simultaneously or in alternation. In this soil various combinations of symptoms develop—timidity, scruples, doubts, obsessions, phobies, terrors, and psycho-sexual anomalies. In the more serious cases there may be attacks of melancholia with anxiety, and chronic conditions of obsession passing on to incurable derangement characterized by self-accusations, hypochondria, and negation. All this may be considered a little indefinite, and applicable to many psychoneurotic disorders, but for the diagnosis of the condition he describes Dupré requires the presence of certain physical signs of which he gives a very long list. They include exaggerated reflexes, tendinous, cutaneous, and pupillary; hyperaesthesia with widespread and long-lasting motor reactions (especially mimicry and vocal); loss of motor equilibrium, evidenced by visceral spasm (pharyngeal, oesophageal, gastro-intestinal, vesical, and palpitation of the heart), emotional tremors of the limbs, starting, shivering, chattering of the teeth, stuttering, transitory myoclonus, and tics; functional inhibition, evidenced by loss of power in the limbs, mutism, and relaxation of sphincters; circulatory disturbances, especially tachycardia, constant or paroxysmal, and a variable pulse, and also alternation of peripheral vaso-constriction and vaso-dilatation and dermography; defective heat control with local variations, objective (local thermometer) and subjective; and glandular disturbance of the sweat, the saliva, of the tears, and of the gastro-intestinal, urinary, genital, and biliary secretions.

Dupré points out that exaggerated emotional response to stimuli is the normal condition in infancy and often persists into childhood, to disappear as inhibition develops with growth and produces nervous equilibrium and stability. In some persons the inhibitory apparatus is imperfectly developed, and is easily thrown out of gear. He does not deny that neurasthenia or hysteria may be grafted on the condition he describes but he insists that it may exist independently of either.

Much credit is no doubt due to Dupré for the observations he made before the war. During the last three or four years the condition described has become familiar to most of those who have had to do with psychoneuroses among cases from the front, and the defect in Dupré's article seems to be that he does not adequately discuss the diagnosis between the condition he describes and neurasthenia, hysteria, some psychopathic states, and simulation. The condition only develops in a predisposed terrain, so that there may be said to be a constitutional disequilibration of affectivity. It is easy to understand that such physical manifestations of the condition as shivering and trembling and chattering teeth, embarrassing to the civilian, would be something more to the soldier, for cowardice in the face of the enemy is one of the worst of military offences. M. de Fleury makes the point well by telling a story of Turenne. On a day of battle that illustrious soldier, seized with trembling, no doubt also, it is suggested, with tachycardia and anxiety, exclaimed: "Ah, carcass, you tremble, but if you knew where I am going to take you you would tremble much more." De Fleury illustrated his paper by the history of a young business man who had always been painfully shy; he was mobilized with the rank of lieutenant on August 3rd, 1914, and did his duty well for eighteen months. Then he had to endure a bombardment which lasted nine hours, during which he was buried. This was followed by a phase of well-marked mental confusion, and a few days later he began to suffer from nervous crises, characterized by a feeling of suffocation and general trembling but without loss of consciousness. After five months' rest he was able to return to duty, but in March, 1917, he was again exposed to bombardment (whizz-bangs), and was thereafter seized with intense trembling, sweating, tachycardia, and cardiac anxiety. When examined by de Fleury he exhibited all the symptoms of Dupré's syndrome, and had to be invalided out of the service. He has returned to his business, but is still greatly inconvenienced by the persistence of the respiratory, circulatory, and secretory disturbances, by sudden outbursts of anger, and by neurasthenic depression. The point de Fleury makes is that in such a case as this the individual has been able to repress his emotion and its physical accompaniments until some traumatism breaks down his resistance.

[1] *Rev. Scientifique*, 1918, No. 9, p. 257.
[2] *Bull. de l'Acad. Méd.*, lxxix, p. 286.

THE BIRTHDAY HONOURS.

THE birthday honours include a considerable number of members of the medical profession. As will be seen from the list printed elsewhere the great majority are awarded in recognition of war services rendered in a naval or military capacity. Among the appointments and promotions within the various orders Surgeon-General H. D. Rolleston, senior physician to St. George's Hospital, who has been actively employed as consulting physician to the Royal Navy since the outbreak of war, has been promoted to be K.C.B. The Companionship of the Bath is conferred upon Deputy Surgeon-General Robert Hill, who has been principal medical officer of the Grand Fleet, and on Major-Generals Sir Anthony Bowlby and Cuthbert Wallace, consulting surgeons with the British armies in France, as well as on Major-General Stanistreet, Deputy Director-General, War Office. Five medical men receive the honour of K.C.M.G.: Major-General Sir Berkeley Moynihan, C.B., a member of the Army Medical Advisory Board; Colonel Sir Ronald Ross, K.C.B., F.R.S., who has been employed on special malaria duty for the army; Surgeon-General M. W. O'Keeffe, C.B., who is D.M.S. of one of the British armies in France; Colonel Sir William Leishman, C.B., F.R.S., who until his recent return to work at the War Office was pathological adviser to the army in France; and Colonel W. H. Horrocks, C.B., a member of the Army Medical Advisory Board and co-editor of the *Journal of the Royal Army Medical Corps*. Among those who receive the Companionship of the Order are Deputy Surgeon-General P. W. Bassett-Smith, R.N., whose work in pathology and bacteriology has been of the greatest value to the navy; Colonel H. M. W. Gray, C.B., consulting surgeon with one of the armies in France; Colonels Armstrong, Elder, and Snell, of the Canadian Army Medical Corps, and Colonel Huxtable, of the Australian Army Medical Corps; Lieut.-Colonels Tewsley of the New Zealand, and

Badgerow of the Canadian Army Medical Corps; Major Cluny Macpherson of the Royal Newfoundland Regiment, and Professor H. L. Ferguson of the University of Otago. We also notice the name of Major Meurice Sinclair, R.A.M.C., who has done so much to systematize the treatment of fractures of the femur. The K.C.I.E. is conferred upon Lieut.-Colonel W. J. Buchanan, I.M.S., Inspector-General of Prisons, Bengal; and among those to whom the C.I.E. is awarded is Colonel Patrick Hehir, C.B., who served with so much distinction in Mesopotamia. Sir Alfred Keogh, G.C.B., becomes G.C.V.O., and Lieut.-Colonel Sir Edward Worthington, C.M.G., M.V.O., Assistant Director-General at the War Office, is promoted to be K.C.V.O. The honour of knighthood is conferred upon Colonel A. W. Mayo-Robson, formerly of Leeds, who has been for some years consulting surgeon in the Southern Command at home; upon Mr. Harry Baldwin, dental surgeon to the King and past president of the Odontological Section of the Royal Society of Medicine; and upon Dr. Nilratan Sarkar of Calcutta. Sir Frederick Treves is appointed to the Order of the Companions of Honour, instituted a year ago. To these and to the many others who have received distinctions and promotions we offer congratulations in the name of the medical profession, while the knighthood conferred upon Mr. Peter Squire will be noted with pleasure by the great number of medical practitioners to whom *Squire's Companion to the British Pharmacopoeia* has proved a useful friend. The lists of appointments to the Order of the British Empire will be published in the *London Gazette* on June 8th, with the exception of the appointments to the Order in respect of services in or for the Dominions and Colonies, which it has been arranged to defer until September.

STATEMENT BY THE MINISTRY OF NATIONAL SERVICE.

THE Minister of National Service is issuing to all medical practitioners a statement with regard to their position under the Military Service Acts, 1916–1918. This sets out at considerable length the way in which the present national emergency affects the provision of sufficient medical services, both for the forces and for the civil community; the measures which are held to be requisite for meeting simultaneously both kinds of needs; and the procedure to be adopted in the selection of doctors for services of various kinds. A historical survey is given of the circumstances which have led the Government to place doctors under an exceptional obligation not simultaneously placed on other members of the community as regards military and civil work. The regulations made under the new Military Service Act are next discussed, with a view to explaining why it will no longer be possible for a doctor who bases his claim for exemption on occupational grounds—that is, grounds of national interest—to be granted exemption from military service on the condition merely of continuing in his present practice. The condition of exemption in such a case will be that of rendering professional services in such places and under such conditions as those competent to judge may deem best in the national interest. But, in order that the best interests of the medical profession as well as those of the community may be conserved, the full co-operation of the profession through its central and local organizations formed for the purpose, and also of its individual members, is recognized as essential. The statement then passes from general considerations to an outline of the procedure to be followed—a matter with which we deal at page 647. It is noted that the calling up of medical practitioners will be conducted in such a way as to avoid all unnecessary disturbance to the medical service of the country, and emphasis is laid on the point that doctors should continue their work as before unless and until called up for service. Since no reference is made in the statement to the proposed "certificate of protection," it is to be assumed that the arrangements for carrying this plan into effect have not yet reached their final form.

THE UTILIZATION OF STUMP MUSCLES.

COMMUNICATIONS made by Italian surgeons to the Inter-Allied Conference on the after-care of discharged sailors and soldiers, which were summarized by Professor Victor Putti of Bologna in his address to the Royal Society of Medicine, of which a report is published in this issue, are welcome contributions to our knowledge of what may be called the secondary surgery of amputations. For although the ante-bellum work of Vanghetti,[1] and the later work of his imitator Sauerbruch, was known in this country, hardly any practical application of the Italian teaching has been made here, and, as far as we know, nothing has been published here. Sauerbruch recorded a case in Germany in 1915, and returned to the subject twice in 1916,[2] when he published a monograph in which those operative procedures which he has employed were fully described and illustrated. Since then the Grand Duchy of Baden has placed at his disposal in Singen the means of further testing the value of Vanghetti's methods. So far as we are aware, however, very little evidence is available as to the results obtained, and most German surgeons appear to be cautiously sceptical upon the subject. British surgeons have doubtless been too busy in doing the obviously necessary work of war surgery to devote time to a procedure of which the practical value had not been established, but Professor Putti's demonstration and lecture and his published account of his experience—he has, we believe, operated upon fifty cases—should stimulate them to give the method a thorough trial, the more so as it can be carried out without exposing the patient to much risk of finding himself worse off, in case of failure, than he was before the intervention. It is in cases of loss of both hands that cinematization is best worth trying, for the needs of these unfortunates are the most crying, and any help in such cases is worth having. In one-armed cases the value of prosthetic appliances is much less, since the surviving hand so soon learns to do double duty. In all cases it would seem wise to resort to cinematization as early as possible, before the patient is used to one-handed life, or has become discouraged by long hospital experience. In this connexion it is noteworthy that a recent German writer refers to the difficulty of persuading patients to submit to the operation.

THE PSYCHOLOGY OF THE ALARMIST.

ONE of the sorest afflictions in times of anxiety like the present is the gloomy prophet who goes about crying out that "all is lost." The vaticinations of Cassandra must have dispirited the Trojans even when they shut their ears most obstinately to them. The defenders of Jerusalem must have felt relief when the seer who ran round the walls ingeminating the fall of the doomed city was slain in the act of calling out woe to himself. Such alarmists we have now in plenty among us. They are represented by the eternal type of the "Fat Boy" who takes a mischievous pleasure in making people's flesh creep; by the fussy person who asks debating questions in Parliament; by the pessimist whose mental constitution leads him to look at the black side of things; and by those newspapers whose characteristic note is sensationalism or which find a market in scaremongering. In a paper read before the Paris Academy of Medicine on April 16th, Dr. Ch. Vallon, physician to the great Paris asylum of St. Anne, stated that by an extension of the French press law of July 29th, 1881, promulgated on August 15th, 1914, the utterance of certain statements in such a way as

[1] *La Chir. d. Organi di Movimento*, vol. i, pp. 71, 293, 400, 419; vol. ii, p. 1.

[2] Sauerbruch, *Med. Klinik*, October 10th, 1915, p. 1125, Berlin. *Zeit. für Orthopädische Chirurgie*, vol. xxxvi, 1916. *Die Willkürliche Bewegbare Kunstliche Hand*, Berlin, 1916.

to be heard by a smaller or larger number of persons simultaneously makes the offender liable to certain penalties. He classified the alarmists produced by the war as criminals, victims of vanity, or pessimists. The criminals were amenable to the law in the ordinary way. So were the vain persons, who talked sensationally because they wished it to be supposed that they had relations with highly placed officials; they also might render themselves amenable to the law. The pessimists were very often persons suffering from disease. Many of the vain alarmists were weak-minded or ill-balanced, but others were hypochondriacal or dyspeptic, and it was the duty of the medical expert to make this plain to the court. In such persons responsibility was diminished and they formed a transition group between the weak-minded vain persons and those suffering from definite mental disorder. In a large number of such persons—melancholics and others affected with various psychoses—the wanderings of their mind are governed by the war news. He instanced the case of a man who had been discharged from the army soon after the beginning of the war for syphilis of the nervous system; his native town was subjected to bombardment, which upset him so much that he took refuge in Paris, where he obtained work in a munition factory, and soon began to spread alarmist reports among his fellow-workmen. He was arrested, and upon him were found sheets of paper, covered with notes in pencil, relating to imaginary defeats of the French forces. The man had, in fact, kept a journal of his delirium, and all his supposed facts were inventions. The medical evidence convinced the court that the man required treatment for his disease and not punishment. Vallon's conclusion is that all alarmists should be regarded with suspicion; some of them are conscious evildoers, others persons suffering from disease—very often brain disease—but they ought all to be either punished or brought under control, for if there were many of them in a community they might be a danger by weakening public confidence. Instead of listening to these cowardly voices we should in times of stress adopt the attitude of the Roman Senate which passed a vote of thanks to a defeated general for not having despaired of the Republic.

WASTAGE AMONG WOMEN WORKERS.

THE Medical Research Committee has issued a report,[1] by Captain M. Greenwood, of the welfare and health section of the Ministry of Munitions, on the causes of wastage of labour in munition factories employing women. The report is founded upon a statistical examination of certain factories—a London factory with full records, a country factory, a Midland factory with conditions intermediate between the first two, and factories for heavy work. The inquiry embraced nearly 40,000 employees in eighteen representative factories, but the completeness of the data varied in different instances. In the case of the London factory records existed from 1911 onwards, and the analysis was brought down to the beginning of December, 1916. It was found that the causes assigned by women for leaving work could be classified in three categories—those who left on account of ill health, those who left for some other sufficient reason, and those who left for no reason or an insufficient one. Both in peace and war the rate of loss in the first two or three months of service was heavy. It would appear that of 1,000 girls entering the factory, 132 did not outstay the second month, and that about one hundred of these left for no sufficient reason. A comparison, indeed, suggests that when the losses from all causes are considered the experience was somewhat more favourable in peace than in war. Taking the loss of effectives within the first three months to be not less than 10 per cent. of the original strength—it was probably more—the question arises as to the causes of a period of employment so short that little useful service can have been rendered. Various causes are suggested as contributing to the result. The first is the fault of the employee herself, such as caprice, unwillingness to submit to discipline, or love of change for its own sake. The second cause suggested is fault in the employer, who does not show judgement in the selection of candidates for employment, the conditions of which are unknown to the applicant but known to the employer. It is suggested also that a third contributory cause may be similar lack of judgement on the part of the officials of the labour bureaux. These officials and factory administrators indulge in mutual recriminations, and it does not seem probable that it will be easy to overcome this difficulty, but its remedy is outside the scope of the report. From a comparison of the effects of munition work in relation to the age of the workers, the conclusion is that the general strain of factory life in itself is not worse borne by elder than by younger women, even in factories engaged upon chemical work which is often associated with specific dangers. But if the factory life is combined with more than a very moderate degree of actual physical work women over 23 come less well through the ordeal. The difference, though not great, is distinct enough to make it a matter of practical importance to attempt to institute a system for recruiting the older women for the physically lighter work and the younger women for the more strenuous labour. This appears to be the most important practical conclusion to be drawn from the report. The early age after which strain becomes too great is noteworthy; it occurs during physical maturity, and its most plausible explanation is that the older women, of whom a larger proportion than of the young women will be married and have young children, have not sufficient reserve of energy to meet the double demand. In an introductory note the Committee bears testimony to the thoroughness with which Captain Greenwood has availed himself of the exceptional opportunities afforded him for the inquiry, and expresses the belief that his numerical data, which are set out in a large number of tables, will long serve as a standard for reference when subsequent work of a similar kind is undertaken in the future.

[1] H.M. Stationery Office. Medical Research Committee. Special Report Series, No. 16. To be obtained through any bookseller. Price 1s. 6d.; post free 1s. 8d.

THE MEDICAL WOMEN'S FEDERATION.

THE first annual meeting of the Medical Women's Federation was held in London, with Dr. Jane Walker, the President, in the chair, and was largely attended by members from all parts of Great Britain. The question of the status of medical women employed in military hospitals under the War Office was discussed. It was felt that these women, through the absence of military rank, were serving under a serious disability involving loss of professional standing. It was unanimously agreed that the Federation should take every means in its power to press for temporary rank for medical women in the military hospitals on the lines of the Territorial R.A.M.C. A draft scheme of maternity and child welfare had been drawn up, but the meeting was in favour of postponing the preparation of the final draft until the question of a Ministry of Health was settled. A statement was made by Dr. Mary Bell, the Federation representative on the Central Medical War Committee, inviting the Federation to nominate three or four representatives to discuss with the Executive Subcommittee of the C.M.W.C. in what way the services of medical women can best be used to take the place of medical men called up under the new Military Service Act. It was unanimously resolved that Regulation 40 D under the Defence of the Realm Act, which makes it an offence for any woman suffering from venereal disease to solicit or to have sexual intercourse with a member of His Majesty's forces, ought to be immediately withdrawn, and a special committee was appointed to consider and report upon the matter in all its bearings.

THE EPIDEMIC IN SPAIN.

THE widespread epidemic of an acute catarrhal affection in Spain, which was stated in our last issue to be most probably influenza and attended by little or no mortality, is now reported to have caused 700 deaths in ten days, but if the number of cases has been as large as reported the case mortality must have been very low. The *Times* of June 3rd quoted Dr. Pittaluga to the effect that the disease attacks the respiratory rather than the abdominal organs; that relapses frequently occur within a few days; and that, although the disease is clearly of the character of influenza, bacteriological examination has not resulted in the discovery of the influenza bacillus, but has revealed an organism described as the parameningococcus. It is well known that the *Bacillus influenzae* is quite commonly absent in cases clinically characteristic of influenza, and that the *Micrococcus catarrhalis*, which has some superficial resemblance to the parameningococcus, is very commonly found. Although, as recent reports of the Medical Research Committee have shown, an epidemic of meningococcus carriers may reach a very high percentage amongst contacts, we are not cognizant of any previous outbreak of cerebro-spinal fever in any degree comparable in extent to the epidemic in Spain. Before coming to any conclusion it is obvious that further bacteriological information must be awaited.

SIR ARTHUR SLOGGETT.

GENERAL SIR ARTHUR SLOGGETT before leaving France was the recipient of many spontaneous proofs of the general recognition by all branches of the army of the success of his administration during three years and three-quarters of strenuous work as Director of Medical Services, British armies in France, and of the high personal regard and esteem in which he is held. Sir Arthur Sloggett, though he has vacated his appointment in accordance with the age and time limits of the army, is still happily endowed with health and energy, and may yet, we hope, be able to render further service to the country.

THE Inter-Allied Food Commission, which, as has been reported, held its first meeting in Paris last November and its second in Rome last March, is meeting this week in London. It is attended by representatives of France, Italy, Belgium, United States of America, and Great Britain. The first business of the commission was to establish physiological principles as to the amount of food necessary for each individual, distinguishing age and sex, and then forming an estimate of the total food requirements of each country. A census of the production of foodstuffs in each country is now being made, and in this way the deficit, which must be met by importation into each country, will be ascertained.

Medical Notes in Parliament.

Territorial Medical Officers.—Commander Bellairs asked Mr. Forster, on June 3rd, whether the War Council had considered the grievance under which the Territorial Force officers of the Royal Army Medical Corps laboured in spite of all their pre-war service in receiving rates of pay and gratuities less than temporary Royal Army Medical Corps officers; and whether the War Council had further considered the favourable report of the Committee of 1917 recommending that the position in regard to pay, allowances, and gratuities of officers in the Royal Army Medical Corps belonging to the Territorial Force and Special Reserve should be equalized with that of temporary officers when they would gain thereby. Mr. Forster, in reply, referred to an answer he gave on February 21st, when he stated that the question was fully considered by the Cabinet Committee on officers' pay, and it was decided not to make the change proposed. These Territorial officers, he added, got the same emoluments as regular officers, and, like them, got the new allowance for children at full rates in the junior ranks, while the officers serving under special contract had half rates only.

Hospital Treatment of American Wounded in England.—Sir Bertram Falle asked Mr. Macpherson, on June 3rd, if he were aware that all the hospitals, including the Royal Hospital, the Fausell Road Hospital (400 beds), the Union Infirmary, and a number of private houses lent to the Voluntary Aid Detachment, Portsmouth, were being taken over by a United States staff, and that the English staff and patients were being sent wherever there was a corner for them; and if he would secure at least the preservation of the Royal Hospital and the Union Infirmary for the English staff and English patients. Mr. Macpherson replied that, owing to the present conditions of fighting in France, some American and British wounded were being brought to this country in the same convoys, and were being treated in British hospitals. It was the desire of the American authorities that their medical and nursing staff now available in this country should undertake some portion of the charge in our hospitals of American and British soldiers. With a view to taking advantage of the generous offer of our ally and freeing British staffs for other hospitals two sections of a general hospital at Portsmouth had been examined, and he hoped that necessary arrangements would be made. British soldiers would not be ejected from the hospital, but as vacancies occurred the majority of patients admitted would probably be American.

Ministry of Health (Scotland).—Mr. Munro informed Mr. Hogge, on May 30th, that until the general proposals for a Ministry of Health had been discussed and adjusted in the War Cabinet he could not make any statement as to the policy of the Government with regard to Scotland.

Travelling Vouchers for Hospital Visits.—Mr. Forster, in a written answer to Mr. Jowett on May 30th, stated that vouchers were issuable at the discretion of medical officers in charge of hospitals which enabled relatives visiting officers and soldiers in hospital in the United Kingdom to travel by rail at single fare for the double journey without the 50 per cent. war increase, provided that the journey was not less than ten miles in the outward direction. Only one visit was allowed in each case, unless the medical officer in charge of the hospital considered in exceptional cases that a second visit was desirable. Two full tickets could be issued for any one visit. Relatives must obtain the vouchers beforehand from the officer in charge of the hospital.

British Doctors in Prisoners' Camps in Turkey.—In a written reply to Mr. Hume Williams (May 30th) Mr. Macpherson has stated that under the Berne agreement of December last one British medical officer and five medical personnel of other ranks might be detained in Turkey per 1,000 British prisoners. The question of increasing the number, if found to be insufficient, was under consideration. It was hoped that the Turkish authorities would make a suitable distribution of this medical staff. The Netherlands Minister at Constantinople would doubtless include this among the many other points in which our interests were involved under the agreement. In reply to a further question, Mr. J. F. Hope wrote that the Turkish Government had not yet given notice of the date upon which the 1,000 British invalid prisoners to be exchanged would be ready for embarkation, and he feared that in the most favourable circumstances it must be a considerable time before the first exchange took place. No inspection of internment camps in Turkey under the Berne agreement had yet taken place, but a representative of the Netherlands Government had left the Hague for the purpose on May 24th, and it was hoped that the inspections would shortly begin.

THE FUTURE OF THE MEDICAL PROFESSION UNDER A NATIONAL HEALTH MINISTRY.

THE first part of this discussion at the Royal Society of Medicine was reported in the BRITISH MEDICAL JOURNAL of April 20th (p. 456). The discussion was resumed on May 29th.

Sir WILLIAM OSLER said that upon two points there was more or less agreement: First, the urgent need of co-ordination in the various departments which now dealt with public health; secondly, that the nationalization of medicine had of late progressively advanced, recent legislation having brought the state to the door of the general practitioner, and, willy-nilly, he had become in some measure a civil servant. Much of this legislation had lacked effectiveness owing to a timorous regard for the fetish of local authority. The profession had too often suffered the pace to be set by organized ignorance, but there was hope in the Local Government Board, where the spirit of Sir John Simon still lived; the Board should form the nucleus of the new department. There were three contentious points: (1) Was a scheme possible in which the general practitioner should be a paid official of the state and yet independent—a civil servant and yet a free agent, the executive officer of a city or county council and yet alive to the needs of science? He wanted to conserve the competition which had had such an important place in the life of the profession for at least two thousand five hundred years, as

illustrated by the bidding of the free Greek towns for Democedes. He was less worried about the choice of doctor than about the choice of practice, and the individual development of the progressive, ambitious man who loved his profession, hated politics, and was too honest to pull wires. (2) What was to be the relation of the state to research? The prejudice in some quarters against state aid was an academic obsession, peculiarly insular and Anglican. Apart from Lister's work on infections, practically all the first-hand discoveries made in this country had been made by men in official harness, such as Griffith Evans, Manson, Ross, Bruce, and Leishman. The debt of the profession was a hundredfold greater to the Local Government Board for its researches in preventive medicine than to all the universities combined. (3) What was the position of the hospital in the scheme? The hospital should form the unit or the centre around which the general practitioners should coalesce. The hospitals were preparing for the change, and within a few years there should be a thoroughly practical working combination of the voluntary agencies with the state. To come into a national scheme there would have to be some radical alterations in the arrangement of the staff. Speaking of medicine only—for nowadays they "could grow surgeons anywhere," while the modern physician was a man of much broader gauge and harder to cultivate—he recognized that in any new scheme there must be a reduction in the number of attending physicians, and he drew an amusing picture of the "growing" of a good consultant according to Major Dill's scheme brought forward at the previous discussion. In conclusion, Sir William Osler said that a strong Ministry of Health, backed by a united profession, could initiate important reforms which seemed at present hopeless. The reconstruction of medical schools; the reform, or rather the destruction, of the curriculum; the establishment in the hospitals of up-to-date clinics, the abolition of unnecessary examinations—some of these reforms at least a strong central organization could force through against the blind opposition of vested interests. These were *post-bellum* problems for the young men, and it would be a pleasure for the seniors to stand by and see fair play between them and the public as represented by the authorities.

Mr. E. B. TURNER said that eighteen central and nine local departments were concerned with public health, and every practitioner who had thought on the subject would agree that a Minister of Health should be appointed to co-ordinate the overlapping interests. He should have Cabinet rank, and be assisted by an advisory board representing the skilled knowledge of the profession. Such a Ministry should have three different spheres of action: (1) Preventive medicine; (2) medicine having to do with the clinical treatment of individuals; (3) research, upon the success of which the success of the other two would depend. The Ministry should take over every department which had to do with health, including the medical department of the Poor Law, and there, of course, arose difficulties, as instanced in the Education Bill, which secured a large field for inspection and treatment to the medical department of the Board of Education. Government departments in the past had put clinical work in a position of disadvantage to preventive; under a Ministry of Health the officers responsible for the preventive and for the clinical side should have equal status, and those who did the administrative work should have some years of clinical training. He hoped that the voluntary hospitals would remain; it would be an exceedingly good thing to continue and extend the principle of the cottage hospital. The general practitioner also should be given as wide opportunity and working power as possible. Abundant use must be made of the general practitioner if the public health was to be served and the utility and independence of the profession maintained.

Dr. J. C. MCVAIL said that it behoved those who were anxious that a Ministry of Health should at last be established to avoid discussion which might hinder rather than help. The primary question, he thought, was the extent and character of the services which the Ministry would wish from the medical profession; when that was settled the terms and conditions would fall to be considered in relation to the decision. He disagreed with Sir William Osler in what he had said about the bearing of competition upon the character of the service. Those who had had a fairly long experience in public health matters were not afraid of doctors becoming officials. The present public health service had not settled down into a routine because it was official. The country was now alive as never before to the importance of the physical welfare of the individual in the interests of the nation, and also to the fact that the medical profession alone could supervise the work. The share the medical profession could take in the work of reconstruction was to establish a department of medical service which should be devoted not to the treatment of disease but to the maintenance of health.

Dr. WILLIAM GORDON said that it was essential to preserve "soulful" contact between patient and doctor, and this could be done by making the general practitioner the backbone of the whole business. He believed with Sir William Osler that if competition were abolished the work of the practitioner would suffer. The Insurance Commissioners had met such a situation with a compromise, which, he thought, with some changes, might be extended over a wider field. A system of part-time service might be inaugurated in which a man should be in part a Government servant and in part in competition with his fellow practitioners. The medical profession must itself have an adequate voice in the new Ministry; it was of no use to have an advisory committee which was merely ornamental. He thought also that the Minister himself should be a medical man.

Dr. HAYDN BROWN said that a Ministry of Health should alone be considered now; when that was formed the question of a State Medical Service would come up in its turn to be fought out by the Ministry aided by the medical profession. The British Medical Association made the claim that many years ago it had put forward the suggestion which was now becoming practical politics. But what had the medical profession done since to further it? It was the laity, notably Lord Rhondda and Mr. Waldorf Astor, who had stimulated the present movement. He suggested the formation of a Section of Medical Economics in the Royal Society of Medicine.

Dr. SMITH WHITAKER expressed the opinion that specialist treatment covered two different things—the kind of service which could only be rendered satisfactorily by a man who had concentrated his study on the subject, and the kind which only necessitated access to special apparatus and accessories, such, for instance, as the diagnosis and treatment of venereal diseases; under a Ministry of Health the general practitioner might have wider opportunities in this second respect.

Sir WATSON CHEYNE, in a few words, said that to get a Ministry of Health was by no means easy, for each Government department was developing its own system of medical supervision, and would be loth to part with it. There was not enough pressure of public opinion to bring matters to a focus. The public needed to be educated.

Dr. G. E. HASLIP pointed out that it was the profession itself which first asked for the interference of the state with medicine—namely, with regard to contagious diseases—and the more disease was studied the more widely the fact of contagiousness was recognized, as, for example, in phthisis. A system of part-time work at clinics and of proper co-ordination with hospitals and specialists would kill any idea of a whole-time state medical service.

On the motion of Sir BERTRAND DAWSON the discussion was again adjourned.

THE distinction of Grand Officer of the Order of the Crown of Italy has been conferred on Count Gian Giacomo della Somaglia in recognition of his "magnificent work" as President of the Italian Red Cross.

PROFESSOR R. PFEIFFER and Dr. G. BESSAU, in a paper (*Deut. med. Woch.*, October 11th, 1917) on the bacteriology of gas gangrene, insist on the importance of distinguishing between Fraenkel-phlegmon and malignant oedema: for the first is a relatively benign, the latter a very virulent infection. The first requires comparatively conservative treatment, the latter immediate amputation allowing a wide margin of healthy tissue. And even so, the patient seldom recovers. They find that both the non-putrefactive bacilli, Fraenkel's and the bacillus of malignant oedema, may cause gas phlegmon. The putrefactive germs play only a secondary part when present along with non-putrefactive germs, and they think it doubtful whether the putrefactive germs by themselves can produce a progressive gas phlegmon. The writers are pessimistic about the prospects of successful serum treatment.

THE WAR.

THE BIRTHDAY HONOURS.

THE following medical names appear in the list of birthday honours published on June 3rd. The military distinctions and promotions have been awarded for valuable services rendered in France and Flanders, Italy, Egypt, Salonica, and the Indian Frontier, or for services otherwise rendered in connexion with the war. All the officers belong to the A.M.S. or R.A.M.C. unless otherwise indicated:

Companion of Honour.

Sir Frederick Treves, Bt., G.C.V.O., C.B.

K.C.B. (Civil).

Temporary Surgeon-General Humphry Davy Rolleston, C.B., R.N.

C.B. (Military).

Surgeon-General Patrick B. Handyside, R.N.

Deputy Surgeon-General Robert Hill, C.V.O., R.N.

Temporary Major-Generals: Sir Anthony A. Bowlby, K.C.M.G., K.C.V.O., and Cuthbert S. Wallace, C.M.G.

Colonel (temporary Major-General) George B. Stanistreet, C.M.G.

Colonels: Stuart Macdonald, C.M.G., Edgar M. Pilcher, D.S.O., Alexander Primrose, C.A.M.C., Gerald T. Rawnsley, C.M.G., Arthur E. Ross, C.M.G., C.A.M.C., G. StClair Thom, C.M.G.

Lieut.-Colonel and Brevet-Colonel (temporary Colonel) Thomas W. Gibbard, K.H.S.

Lieut.-Colonel and Brevet-Colonel Allan J. Macnab, I.M.S.

Lieut.-Colonel John Blackburn Smith, I.M.S.

Temporary Lieut.-Colonel James W. Barrett, C.M.G.

K.C.M.G.

Temporary Major-General Sir Berkeley G. Moynihan, C.B.

Surgeon-General Menus W. O'Keeffe, C.B.

Colonels: William H. Horrocks, C.B.(ret. pay), Sir William B. Leishman, C.B., F.R.S., K.H.P.

Temporary Colonel Sir Ronald Ross, K.C.B., F.R.S.(ret. pay, I.M.S.).

C.M.G.

Fleet Surgeon (acting Deputy Surgeon-General) Percy W. Bassett-Smith, R.N., C.B.

Fleet Surgeons: Frederick J. A. Dalton, R.N., Edward Sutton, R.N., David Walker Hewitt, R.N., and William W. Keir, R.N.

Colonels: George E. Armstrong, C.A.M.C., Robert W. Clements, D.S.O., John M. Elder, C.A.M.C., Wilfred E. Hudleston, D.S.O., Robert B. Huxtable, D.S.O., V.D., A.A.M.C., Daniel O'Sullivan, and Arthur E. Snell, D.S.O., C.A.M.C.

Temporary Colonels: Owen W. Richards, D.S.O., and Arthur S. Woodwark.

Lieut.-Colonels (temporary Colonels): Edmund M. Morphew, D.S.O., Harold Collinson, D.S.O., James S. Gallie, D.S.O., John A. Hartigan, D.S.O., Albert G. Thompson, D.S.O.

Lieut.-Colonels: William R. Blackwell, Thomas A. Granger, I.M.S., Albert E. Hamerton, D.S.O., Francis S. Irvine, D.S.O., Cyril H. Tewsley, N.Z.M.C.

Honorary Lieut.-Colonel George W. Badgerow, C.A.M.C.

Major and Brevet Lieut.-Colonel Eugene Ryan, D.S.O.

Major (and temporary Colonel) Henry McI. W. Gray, C.B.

Majors (temporary Lieut.-Colonels): William L. Steele and Edmund T. Potts, D.S.O.

Major (acting Lieut.-Colonel) George H. L. Hammerton, D.S.O.

Majors: Cluny Macpherson, M.D. (Royal Newfoundland Regiment), and Meurice Sinclair.

Temporary and honorary Major Charles G. Jarvis.

Captain (temporary honorary Lieut.-Colonel) Donald J. Armour.

Henry Lindo Ferguson, M.D., Professor of Ophthalmology, University of Otago, New Zealand.

K.C.I.E.

Lieut.-Colonel Walter James Buchanan, C.I.E., I.M.S., Inspector-General of Prisons, Bengal.

C.I.E.

Colonel Patrick Hehir, C.B., C.M.G., I.M.S.

Lieut.-Colonels Ernest Alan R. Newman, I.M.S., and Herbert A. Smith, I.M.S.

Major and Brevet Lieut.-Colonel Frederick A. F. Barnardo, I.M.S.

Major Davis Heron, I.M.S.

John Robertson Henderson, M.B., F.L.S.

G.C.V.O.

Lieut.-General Sir Alfred Keogh, G.C.B., C.H.

K.C.V.O.

Sir Alan Reeve Manby, M.V.O.

Lieut.-Colonel Sir Edward Scott Worthington, C.M.G., M.V.O.

M.V.O.

Charles Percival White, M.B.

Knighthood.

A. W. Mayo-Robson, C.B., C.V.O., F.R.C.S.

Harry Baldwin, M.R.C.S., Dental Surgeon to the King.

Nilratan Sarkar, M.D., Calcutta.

Bar to D.S.O.

*Captain (temporary Lieut.-Colonel) Arthur T. Pitts, D.S.O.

D.S.O.

Lieut.-Colonels (temporary Colonels): Frederick A. Maguire, A.A.M.C., Arthur E. Shepherd, A.A.M.C.

Lieut.-Colonels: George J. Boyce, C.A.M.C., Edward T. Brennan, M.C., A.A.M.C., William C. Croly, Arthur L. Dawson, A.A.M.C., Anson S. Donaldson, C.A.M.C., William E. Foggie, Archibald L. C. Gilday, C.A.M.C., John N. Gunn, C.A.M.C., Joseph Hayes, C.A.M.C., Daniel P. Kappele, C.A.M.C., William E. Kay, A.A.M.C., Montagu M. Lowsley, John Powell, Balcombe Quick, A.A.M.C., Hugh W. Thomson, and John R. Whait.

Major (temporary Colonel) Creighton H. Lindsay, C.M.G.

Majors (temporary Lieut.-Colonels) Richard C. Hallowes, Ernest C. Hodgson, I.M.S.

Majors (acting Lieut.-Colonels): Frederick J. Garland, John W. Leitch, Rowland P. Lewis.

Majors: Thomas A. Barron, Francis L. Bignell, A.A.M.C., Arthur R. Clayton, A.A.M.C., Albert T. Dunlop, A.A.M.C., Thomas C. C. Evans, A.A.M.C., George H. R. Gibson, C.A.M.C., Charles E. Hercus, N.Z.M.C., Theodore A. Lomer, C.A.M.C., Donald S. Mackenzie, A.A.M.C., Ernest A. C. Matthews, I.M.S., Major Walter J. Stack, A.A.M.C., Alan C. Turner, Wilfred Vickers, A.A.M.C., Douglas P. Watson, and Ralph K. White.

Surgeon-Major Arthur W. Shea (Notts and Derby Regiment).

Temporary Major Harold W. Wiltshire.

Captains and Brevet Majors (acting Lieut.-Colonels) Claude H. S. Frankau and Benjamin Johnson.

Captains (temporary Lieut.-Colonels) Francis W. M. Cunningham and Hector G. G. Mackenzie.

Captains (acting Lieut.-Colonels): William Blackwood, Herbert W. Carson, Colin Clarke, Robert Hemphill, Thomas B. Layton, Arthur N. R. McNeill, Sinclair Miller, M.C., Ernest W. Wade, Alfred J. Williamson.

Captain (temporary Major, acting Lieut.-Colonel) Thomas A. Green.

Captains: Ernest M. Cowell, Ambrose L. Lockwood, M.C., Mervyn J. Holmes, A.A.M.C., Wilfred J. Pearson, M.C., O. Teichmann, M.C.

Temporary Captains (acting Lieutenant-Colonels): Ralph E Drake-Brockman and Albert Jones, M.C.

Temporary Captains: James A. Conway, M.C., Samuel S. Greaves, M.C., and Wilfred J. Pearson, M.C.

Temporary honorary Captain Humphrey Nockolds.

Bar to the Military Cross.

Captain (acting Major) Hugh H. Robinson, M.C.

Captains: *Thomas S. Elliot, M.C., Arthur E. Ironside, M.C., *Hamilton S. Moore, M.C., and *John Rowe, M.C.

*Temporary Captain George W. B. James, M.C.

Military Cross.

Captain (acting Major) William T. Ewing, C.A.M.C.

Captains: Robert P. Anderson, William D. Anderton (S.R.), Richard P. Ballard (S.R.), Roy D. Bartram, A.A.M.C., Philip B. Benham, N.Z.M.C., Douglas W. Berry, Alexander C. Bryson, Frederick C. Chandler, Eugene H. Coyne, David Dempster (S.R.), James Derham-Reid, George S. Elliston, Charles N. Gover (S.R.), Nicholas H. H. Haskins, Sidney M. Hattersley, Humphrey F. Humphreys, David W. John (S.R.), Griffiths L. Jones (S.R.), Ivan B. Jose, A.A.M.C., Gerald P. Kidd (S.R.), William A. Lethem (S.R.), Donald C. Macdonald (S.R.), William G. Mackenzie, William F. McLean, (S.R.), Henry P. Malcolm, Norman R. Mathews, A.A.M.C., Francis R. H. Mollan (S.R.), Cyril E. Petley, George L. K. Pringle, Albert Ramsbottom, Douglas G. Rice-Oxley, Frank H. Robbins, Cedric M. Samson, A.A.M.C., Clement P. Sells, Frank Scroggie, John A. Shanasy, A.A.M.C., John J. McI. Shaw, Robert G. Shaw, Edward S. Simpson, George H. Stevenson, (S.R.), Ludwig S. B. Tasker, Francis G. Thatcher, William McN. Walker (S.R.), and Valentine H. Wardle.

Temporary Captains: Wilfred H. Alderton, Francis J. Allen, Robert H. Alexander, Lawrence W. Bain, Geoffrey T. Baker, Stanley Batchelor, William D. Bathgate, William Brownlie, Charles W. G. Bryan, Bloomfield G. H. Connolly, Henry H. Davis, John W. Dew, Leslie W. Evans, Keith D. Falconer, Richard D. Fitzgerald, Hope M. Gillespie, William E. Hallinan, Ranald M. Handfield-Jones, Claude C. Harrison, J. Berry Haycraft, Godfrey J. D. Hindley, Austin H. Huycke, Joseph G. Johnston, David A. D. Kennedy, Francis J. Lidderdale, Eric A. Lumley, William J. Macdonald, John B. McFarland, Donald MacIntyre, Cusack O'Malley, Herbert M. Pentreath, Michael P. Power, Ralph S. Renton, John W. Riddoch, Robert S. Ross, William J. Rutherford, John H. Thornley, James A. Tobin, John Watson, Alexander U. Webster.

Lieutenant (temporary Captain) Desmond W. Beamish.

Quartermaster and honorary Captain Charles F. Fraser.

* The announcements of awards of the D.S.O. and Military Cross in these cases have not yet been published in the *London Gazette*, but will appear in due course.

Quartermaster and honorary Lieutenant George Sellex.
Temporary Quartermaster and honorary Lieutenant George S. Annett.

To be Brevet Colonel.

Lieut.-Colonels (temporary Colonels): W. H. S. Nickerson, V.C., C.M.G., and G. J. A. Ormsby, D.S.O.
Surgeon Lieut.-Colonel E. N. Sheldrake (ret. pay, late Grenadier Guards).
Lieut.-Colonels: F. J. Brakenridge, C.M.G., A. L. A. Webb, C.M.G., and Sir E. S. Worthington, C.M.G., M.V.O.
Temporary Lieut.-Colonel W. L'E. Eames, C.B. (Lieut.-Colonel A.A.M.C.).

To be Brevet Lieut.-Colonel.

Majors (temporary Lieut.-Colonels): E. B. Bird, D.S.O., and C. W. Holden, D.S.O.
Majors (acting Lieut.-Colonels): C. G. Browne, D.S.O., P. Davidson, C.M.G., D.S.O., C. H. Turner, D.S.O.
Majors: H. V. Bagshawe, D.S.O., F. G. Faichnie (ret. pay R. of O.), and C. A. Gill, I.M.S.
Captains and Brevet Majors: H. M. Rigby, K.C.V.O. (temporary Lieut.-Colonel, R.A.M.C.), Sir H. J. Stiles (temporary Lieut.-Colonel, R.A.M.C.).

To be Brevet Major.

Captain (acting Major) A. G. R. Foulerton.
Captains: H. H. Blake, L. G. Bourdillon, D.S.O., M.C., C. C. Frye, J. Gilmour, M.C., and W. J. F. Mayne.
Temporary Captain A. E. Boycott.

To be Honorary Lieut.-Colonel.

Quartermasters and honorary Majors: H. Copping (ret. pay) and A. Wilson (ret. pay).

To be Honorary Major.

Quartermaster and honorary Captain J. W. Osborne.

I.S.O.

William J. Henderson Sinclair, M.B., Medical Officer Barlinnie Prison.
Senior Assistant Surgeon and honorary Major Michael Courtney, I.S.M.D., Superintendent, Central Jail, Montgomery, Punjab.

MENTIONED IN DISPATCHES.

The following officers of the medical services are included in General Sir Herbert Plumer's dispatch dated April 18th, 1918, containing a list of officers and others whose distinguished and gallant services and devotion to duty he considers worthy of special mention.

Army Medical Service.

Staff.

Major-General F. R. Newland, C.B., C.M.G.
Colonels: R. J. Blackham, C.M.G., C.I.E., D.S.O., S. L. Cummins, C.M.G., J. V. Forrest, C.M.G., L. N. Lloyd, C.M.G., D.S.O., T. du B. Whaite, C.M.G.
Lieut.-Colonel (temporary Colonel) R. Pickard, C.M.G.
Lieut.-Colonel C. H. Furnivall.
Captain T. D. Inch, M.C.
Temporary Captain W. J. Pearson, M.C.

Royal Army Medical Corps.

Lieut.-Colonels W. C. Croly, J. W. West.
Captain (temporary Lieut.-Colonel) T. H. Scott, M.C.
Captain (acting Lieut.-Colonel) A. Irvine-Fortescue.
Captains: D. G. Duff (S.R.), H. W. Maltby (S.R.), T. S. Nelson (S.R.).
Temporary Captains: W. E. Bullock, P. J. Chissell, S. J. Drake, M.C., J. L. Davies, J. S. Doyle, W. Duffy, D. G. Gardiner, T. L. Llewellyn, T. Stordy, T. Thompson, H. Upcott, R. R. Watts.
Lieutenant (temporary Captain) T. J. Kelly, M.C.
Temporary Lieutenant T. B. Johnston.
Temporary Quartermasters and honorary Lieutenants: E. G. I. Brice, C. Elliot, T. H. Griggs.

Royal Army Medical Corps (T.F.).

Major (acting Lieut.-Colonel) G. H. L. Hammerton, D.S.O., M.C.
Captain (acting Lieut.-Colonel) T. A. Green, D.S.O.
Captain (acting Major) W. Bowater, M.C.
Captains: L. Ball, G. C. Soutter, B. M. Young.
Quartermaster and honorary Captain S. C. Wright.

Indian Medical Service.

Lieut.-Colonel J. C. Robertson, C.M.G., C.I.E.

The King has awarded the Military Medal to the following five members of the nursing profession for distinguished services during a recent hostile bombing raid on a casualty clearing station: Sister-in-charge Kate Maxey, T.F.N.S., Sister Dorothy P. Foster, R.R.C., T.F.N.S., Acting Sisters Mary A. Brown, Q.A.I.M.N.S.(R.), Marie D. Lutwick, Q.A.I.M.N.S.(R.) (Canada), and Miss Lilian A. Forse, V.A.D.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Died on Service.

Staff Surgeon C. R. M. Baker, R.N.

Staff Surgeon Cecil Robert Morshead Baker, R.N. died suddenly at H.M. training establishment, Shotley, on May 26th, aged 37. He was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1906, entered the navy as surgeon on May 14th, 1907, and became staff surgeon in 1915.

ARMY.

Killed in Action.

Major E. J. Elliot, R.A.M.C.

Major Edward John Elliot, R.A.M.C., was killed on May 23rd, aged 37. He came of an old Border family, and was the sixth owner in direct succession of the estate of Binks, Roxburgh County. He was born on May 5th, 1881, and was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1904, afterwards acting as house-surgeon of the Radcliffe Infirmary, Oxford. He entered the R.A.M.C. as lieutenant on July 30th, 1906, gained the Parkes Memorial medal in hygiene while at the R.A.M.C. College, became captain on January 30th, 1910, and had recently been promoted to major. He went to France in August, 1914, and was mentioned in dispatches in January, 1916.

Captain D. E. Howes, Canadian A.M.C.

Died of Wounds.

Captain I. C. Maclean, D.S.O., M.C., R.A.M.C.

Captain Ivan Clarkson Maclean, D.S.O., M.C., R.A.M.C., died of wounds as a prisoner in a German hospital on April 4th, having previously been reported as missing on March 24th. He was the son of the late Major-General H. J. Maclean, Rifle Brigade, and was educated at Haileybury and at St. Thomas's Hospital. He took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1906, and graduated M.B. and B.S.Lond. in the same year, and M.D. in 1909. He subsequently filled the posts of assistant in the *x*-ray and in the children's surgical department at St. Thomas's, of house-physician to the Brompton Consumption Hospital, and of anaesthetist to the Royal Ear Hospital, Soho. He then went into practice at Knightsbridge, holding the appointments of anaesthetist to the Golden Square Hospital, and of honorary medical officer to the Actors' Association. He took a temporary commission as lieutenant in the R.A.M.C. on August 19th, 1914, and was promoted to captain after a year's service. Most of his service was spent in France with his father's old corps, the Rifle Brigade. He received the Military Cross on June 23rd, 1915, for Neuve Chapelle; a bar for the battle of the Somme on December 21st, 1916; and the D.S.O. on September 26th, 1917, for the third battle of Ypres, where he was severely wounded; he went to the front again last January. His younger brother, Lieutenant A. C. Maclean, R.E., was killed on April 9th.

Lieutenant W. E. Brown, R.A.M.C.

Lieutenant W. E. Brown, R.A.M.C., was reported as having died of wounds, in the casualty list published on May 29th. He was attached to the Duke of Wellington's, the West Riding Regiment.

Died on Service.

Lieut.-Colonel F. W. Thomson, I.M.S.

Lieut.-Colonel Francis Wyville Thomson, Bengal Medical Service (retired), died suddenly at Bonside, Linlithgow, on May 27th, aged 58. He was born on February 7th, 1860, the only son of the late Sir Charles Wyville Thomson, of *Challenger* fame, professor of natural history in Edinburgh University, and was educated at that university, where he graduated M.A. in 1880, and M.B. and C.M. in 1886, also taking the D.P.H. of the R.C.S.Ed. in 1892, and the Liverpool diploma in tropical medicine in 1905. Entering the I.M.S. as surgeon on September 30th, 1886, he became major on September 30th, 1898, and lieutenant-colonel on September 30th, 1906, retiring on March 14th, 1908. He served on the North-

West frontier of India in the Waziristan campaigns of 1894–95 and of 1901–02, receiving a medal and clasp for each, and in the third China war of 1900, when he took part in the relief of Peking (medal with clasp). During the present war he had served as senior medical officer of the Tay defences. Most of his service in India was spent in military employment.

MAJOR A. WESTLAKE, R.A.M.C.(T.F.)

Major Algernon Westlake, R.A.M.C.(T.F.), died at Grimsby on May 25th, aged 59. He was educated at the universities of Edinburgh, where he graduated M.B. and C.M. in 1884, and Manchester, after which he filled the posts successively of house-surgeon of Hertford General Infirmary, resident medical officer of the District Hospital, Great Grimsby, and medical superintendent of the Grimsby Corporation Small-pox Hospital. He then went into practice at Grimsby, also holding the appointments of honorary surgeon to the Grimsby and District Hospital and to the Grimsby Church Schools, honorary physician to the Grimsby Nursing Institute, medical officer to the borough police and to the Grimsby Workhouse, and public vaccinator to No. 2 District of Grimsby Union. He had been Vice-President of the East Yorks and North Lincoln Branch of the British Medical Association. He held a commission, dated October 14th, 1908, as Major R.A.M.C.(T.F.) in the 4th Northern (Lincoln) General Hospital.

CAPTAIN L. H. Y. STEPHEN, R.A.M.C.

Captain Lionel Henry Yorke Stephen, formerly of Lutterworth, Cambridgeshire, and Folkestone, Kent, died of acute tuberculosis at Bournemouth on May 22nd, 1918. The sixth son of the late James Stephen, Judge of No. 17 County Court Circuit and writer of *Stephen's Commentaries*, he entered Guy's at a later age than the average student, and became M.R.C.S. L.R.C.P. in 1897. After filling resident appointments at two institutions, he went as a civil surgeon to South Africa on the outbreak of the Boer war and served there until invalided in 1901 after a severe attack of typhoid fever. On the outbreak of the present war he was, in view of his previous experience, reaccepted for service despite his being much over the age limit of the time, and went out with the first expeditionary force. Eventually pleuritic effusion caused him to be relegated to home service, and the remainder of his life until three months ago was spent as registrar at the Military Hospital, Dover. Of notably open-handed disposition and popular with all sorts and conditions of men, he died at the age of 49 and is survived by a wife and two children.

Wounded.

Lieut.-Colonel K. D. Murchison, D.S.O., R.A.M.C. (S.R.).
Major G. D'R. Carr, M.C., R.A.M.C. (temporary).
Major A. R. Clayton, Australian A.M.C.
Major E. B. Hogan, Canadian A.M.C.
Major H. E. Macdermot, Canadian A.M.C.
Major C. R. Merrilees, Australian A.M.C.
Captain R. B. Anderson, Canadian A.M.C.
Captain J. H. Bensted, R.A.M.C. (temporary).
Captain J. N. Cruickshank, R.A.M.C. (temporary).
Captain C. A. Davies, Canadian A.M.C.
Captain M. Ffoulkes, R.A.M.C. (temporary).
Captain E. M. Gordon-Glassford, M.C., Australian A.M.C.
Captain W. B. Jack, R.A.M.C. (temporary).
Captain G. B. McGregor, M.C., R.A.M.C. (temporary).
Captain W. F. McIsaac, Canadian A.M.C.
Captain H. K. Mitchell, Canadian A.M.C.
Captain A. J. Neilan, R.A.M.C. (temporary).
Captain H. C. Pearson, Canadian A.M.C.
Captain R. K. Rae, Australian A.M.C.
Captain J. H. Walmsley, Canadian A.M.C.
Captain and Quartermaster R. J. Fleming, R.A.M.C.
Captain J. H. Duff, Canadian Army Dental Corps.

Wounded and Missing.

Captain P. M. McLachlan, M.C., R.A.M.C. (temporary).

Prisoners of War.

Captain F. Dallimore, M.C., R.A.M.C. (temporary).
Captain F. C. Nichols, R.A.M.C. (T.F.).
Captain D. A. Wilson, R.A.M.C. (temporary).

DEATHS OF SONS OF MEDICAL MEN.

Deane, Gordon Alexander, Captain Royal Irish Fusiliers, eldest son of Dr. Charles C. Deane, of Loughall, co. Armagh, died of wounds on April 11th, aged 20. He got his commission on March 17th, 1915, and went to the front in February, 1917.

Fry, Edwin Harries Sargood, Major R.G.A., son of Dr. E. S. Fry, Secretary of the Edinburgh Medical Missionary Society, died of wounds in a casualty clearing station on May 25th, aged 23. He was educated at Watson's College, Edinburgh, and became an engineer. When the war began he was a member of the Forth Defence Company of the Royal Engineers (T.F.). He got a commission in November, 1915, went to the front in January, 1917, and had previously been wounded. Two of his brothers are serving, one in the I.M.S. and one in the Royal Air Force.

James, C. K., Lieut.-Colonel Border Regiment, attached West Yorkshire Regiment, only surviving son of Dr. C. A. James, of Upper Clapton, killed on May 19th, aged 26. He was educated at Cheltenham College, and at Caius College, Cambridge, where he held a scholarship and graduated as B.A. In February, 1914, he went to Shanghai. When war began he returned at once, and got a commission in the Border Regiment. He became lieutenant in March, 1915, went to Gallipoli, and was wounded at Anafarta. He became captain in August, 1915, went to France in July, 1916, and received the D.S.O. after the battle of the Somme. In January, 1917, he was promoted to major (temporary); in March, 1917, temporary lieut.-colonel, commanding a battalion of the West Yorks; he received a bar to the D.S.O. for Cambrai, had been six times mentioned in dispatches, and last March commanded a brigade.

We are informed that Captain M. T. Ascough, M.C., R.A.M.C. (T.F.), who was reported missing in our issue of April 13th, is a prisoner of war and unwounded.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

Correspondence.

TUBERCULOSIS OFFICERS AND THEIR WORK.

SIR,—In the BRITISH MEDICAL JOURNAL of May 25th, in an article under this heading, some suggestions are made to which a large number of practitioners will take grave exception. One wonders whether it be quite politic to draw comparisons between the state medical officer and the private practitioner, and why the former is considered more competent to recognize tuberculosis in its earlier stages than the latter; but there are other and more important considerations to which I wish to draw attention.

The explanation put forward for the delay in notification—namely, that it is due to the mistaken idea that a positive diagnosis is not justified until bacilli appear in the sputum—may often be given, but I suggest that a more honest explanation is a desire of the practitioner to refrain from the objectionable task of notification so long as he can cling to the hope that the disease is curable. This explanation may be surprising, but analyse the reasons a little further and it will surprise few.

"The gradual weeding out of the dangerous elements" is no new method of attempting to eradicate disease from a community. It is not a twentieth century innovation, and is not even confined to the human species. There are three quotations which might be well placed together. The first is from the Levitical law on leprosy, "All the days wherein the plague shall be in him he shall be defiled; he is unclean; he shall live alone; without the camp shall his habitation be." The second is from your leading article: "But in the case of tuberculosis, the interests of the individual must give place to those of the community in which he lives, and his medical adviser, whether he be acting in a private or in a panel capacity, should refuse to aid in the suppression of the truth." The third is from the Hippocratic oath: "Whether in connexion with my professional practice or not in connexion with it I shall see or hear in the life of men which should not be spoken of abroad I will not divulge, as reckoning that all such should be kept secret. While I continue to keep this oath unviolated, may it be granted to me to enjoy life and the practice of the art respected by all men in all time."

Might I suggest that the attitude of the community towards disease through all ages, which finds expression in the first two quotations, made the Hippocratic oath a necessity for the practice of the art? Would Hippocrates have consented to the notification of leprosy? Will it prove ultimately in the interests of the community to lightly cast aside the experience of many great medical thinkers of the past, and abolish secrecy in dealing with those suffering from disease which may be dangerous to the community in which they live?

I will instance what it may do. A young man called at the surgery; the medical man informed a sister that he was afraid her brother was suffering from consumption, and that it might be advisable to send him to the tuberculosis dispensary. The medical man did not see the patient again until he was far advanced in consumption. The young man admitted that he had not worked for six months. He had not claimed insurance benefit because he was afraid he would be notified as suffering from consumption. *The violation of the oath prevents the practice of the art.*

Is the profession satisfied that when their patients get to know that if they suffer from "anaemia, indigestion, wasting, and general debility," they may be in reality suffering from consumption and that they must go to the tuberculosis dispensary to be "weeded out"; will they seek the advice of the profession, or may they not nurse their illnesses in secret or seek the advice of the charlatan or quack? It may be dangerous to admit, but the confession will find an echo in the heart of many other practitioners. I have had cases where every indication was that the patient was suffering from pulmonary tuberculosis, where the patient and the mother have pleaded that if there was any doubt notification should not be made; and remembering the tragic exclamation of a young lady who had once been engaged to be married, "Who will marry a girl that has been in a sanatorium?" I have waited and the patients are now without a single symptom to indicate the previous mischief. Perhaps the diagnosis was wrong.

It can be admitted that many are indifferent to visiting a tuberculosis dispensary, as we find many who are willing to sit in a public and much advertised venereal clinic; but, as a rule, they are drawn from a type which we would not like to become characteristic of the nation. A member of an Insurance Committee admitted to me that he would seek other medical advice before he would go to a dispensary, and he had been advocating closer co-operation between the tuberculosis officer and the practitioner!

Tuberculosis officers appear to be very eager to give advice to the general practitioner; may one of the latter return the compliment by pointing out to them that the eradication of cause is even more important than the recognition of early symptom—the back-to-back houses, the overcrowding, the long working hours, the malnutrition, only to mention a few to which they could devote their energies?

Other reasons and other proofs must be forthcoming before I will be eager to hand over the sick wolf to the tender mercies of the pack.—I am, etc.,

May 27th. A PRACTITIONER.

THE MEDICAL PROFESSION AND THE MILITARY SERVICE ACT.

THE following letter has been addressed by the Council of the Edinburgh Branch of the British Medical Association, and copies have been sent to the Prime Minister, the Minister of National Service, some other members of the Government, the members of Parliament of the area of the Edinburgh Branch, and to various others:

Sir,

The Council of the Edinburgh Branch of the British Medical Association desire to call attention to certain matters in connexion with the Military Service (No. 2) Act, 1918.

They wish to do all in their power to assist the Ministry of National Service in its endeavour to make the best use of the medical profession in the present war emergency, in the interests both of H.M. forces and of the civil population. With this object they feel it their duty to approach you on this matter because, except through the Committee of Reference, the Central Medical War Committee, and the Scottish Medical Service Emergency Committee, no one of which can claim to be representative, the medical profession has had no opportunity of expressing its views to the Government.

The Council are proud of the fact that the members of the medical profession have been conspicuous for the readiness with which they have voluntarily offered service in the interests of the nation throughout the war, and are convinced that this readiness will continue. All the more on that account, they are strenuously opposed to compulsory powers being exercised for the provision of medical attendance on the civil population. From their intimate knowledge of general practice they are convinced that serious difficulties would arise in giving effect to any such compulsory reorganization. They are, however, cordially in favour of any voluntary arrangements which it may be found possible to make for this purpose. Such arrangements should in every case be made with the sanction of the Local Medical War Committees.

They strongly disapprove of any possible intention of the authorities to exercise their powers in such a manner as to compel a medical man without giving him the option of accepting a commission in H.M. forces to make the choice between ordinary military service and the undertaking of some new work in civil practice to which he may have serious and valid objections. They hold that, as in the past, no medical man should be conscripted into the ranks unless he has declined to accept a commission as a medical officer in H.M. forces.

They are convinced that there are many medical men in civil practice, not only within the new age limit, but considerably beyond it, who would be fit and willing to act as military medical officers at home or in base hospitals abroad were they given the opportunity; but who would almost inevitably break down under the strain of increased civil medical work.

They venture to make a strong appeal for the consideration of some such alternative to the more cumbrous method of civil substitution which seems to be in contemplation. It would, it appears to them, not only be an advantage to the army by giving a wider choice of experienced men for the less onerous but highly responsible posts in the R.A.M.C., but would benefit the general population by leaving at home some of the younger men who are best fitted to bear the unusually heavy strain of civil practice.

Before, however, any further extensive call is made on the much-thinned ranks of those engaged in civil practice, the Council would like to feel sure that the War Office are using the medical officers they already have to the best possible advantage. Many reliable reports have been received showing that there are officers in the R.A.M.C., both in this country and abroad, who are not fully occupied. There are few men now remaining in civil practice of whom the same can be said.

They are strongly impressed by the severe strain imposed on the general practitioners in the winter months during the war, and in view of the further call being made for medical officers they suggest that temporary employment in the R.A.M.C. should be offered for short periods, to enable general practitioners to take their share in the heavy work abroad during the summer and to return to their practices during the winter, when their services are in less demand at the front and more urgently required at home.

Yours faithfully,

WM. BLAIR,
President.
JOHN STEVENS,
Honorary Secretary.

British Medical Association,
(Edinburgh Branch Council),
78, Polwarth Terrace, Edinburgh,
June 3rd, 1918.

ADAPTATION AND DISEASE.

SIR,—I cannot expect the main body of your readers to be familiar with my writings, and thus Professor J. T. Cunningham's letter (p. 632) necessitates a reply. In that letter I am charged with having "the audacity to claim priority with respect to the publication of a hormone theory of heredity, and to place" his "name in a footnote together with those of Heape, Bourne, MacBride, and Dendy." What are the facts? The relevant part of my footnote runs as follows:

I do not think that I can be accused of unduly advertising my wares, or of too keen a desire to claim priority, when I have allowed sixteen years to elapse before calling the attention of biologists in general to my address of 1901 (here republished in

Part II). The conclusions then reached by me regarding metabolites and, as we subsequently became accustomed to term them, hormones, and their influence upon the germ cells, have since then been enunciated by several prominent biologists, by Heape, Bourne, Cunningham, MacBride, and Dendy, although in each case without note of my earlier contribution, which, it should be noted, appeared in a leading organ of the medical profession under a title which had no uncertain sound.[1]

What I stated in 1901 was, after pointing out that agents introduced into the body from without could influence the germ cells:

Exogenous and bacterial intoxications are not the only intoxications. We recognize yearly more and more the existence of states of truly endogenous intoxication, auto-intoxication, of disturbed states of constitution due to disturbances in glandular activity, or to excess of certain internal secretions, or of the substances ordinarily neutralized by the same. Such disturbances acting on the germ cells would be truly somatogenic.

I then instanced the case of gout and the gouty diathesis, at times originating *de novo*, more often "inherited," and I continued:

Defect in bodily metabolism has led to intoxication of the germ cells, and the offspring show a peculiar liability to be the subjects of intoxications of the same order. Here what is transmitted is a constitutional state, and that constitutional state may manifest itself in more than one way, but no one will deny that this is truly inheritance of an acquired condition.

Now it is true that in 1901 Professor Cunningham's distinguished colleague at University College had not invented the term "hormone." Professor Starling brought this into the world in the course of his Croonian lectures for 1905. He introduced it in order to afford a generic term for what may rightly be termed the active principles of the internal secretions, for bodies which have a direct chemical action upon sundry tissues in contradistinction to the enzymes which have a mediate action. Granting this, it is the thing, not the name given to it, that counts. It is quite possible that some one anticipated me in the suggestion that modifications of the internal secretions may permanently influence the germ cells. Unconsciously we absorb the opinions of others. Yet all these years I have not succeeded in discovering that any one was before me in arriving at this conclusion. It will be observed that I did not claim, as Professor Cunningham implies elsewhere in his letter, the enunciation of a complete hormonic theory. Rather, I regard a purely hormonic theory as incomplete, adhering to my original presentation and holding that metabolites of more than one order—enzymes, for example, as well as hormones—are to be held effective. No physiologist can accept a hormone theory pure and simple. But the greater includes the less, just as 1901 preceded 1908.

Briefly, therefore, Professor Cunningham's "charge" is, on the first count, that I have the audacity to claim that there were students of nature before Aristotle; and, on the second, that I have the audacity to mention Galen and other naturalists in the same breath with the Stagirite.

Had Professor Cunningham moved in circles outside the biological—for instance, among artists—he would have found that it is quite a commonplace to draw the distinction between the academic upholders of tradition and those who are impatient of the trammels of the schools. This charge of audacity takes us back in a curious manner to the academic atmosphere of the late Middle Ages, and to those who resisted the Renascence.—I am, etc.,

London, W., June 3rd. J. G. ADAMI.

CARE OF THE TUBERCULOUS SOLDIER.

SIR,—Major Horton-Smith Hartley in his valuable paper (p. 609) emphasizes the need of men retaining their previous occupations in better health conditions than is possible in crowded cities. The possibilities of this, however, are at present limited, but they need not be in the future, if men with the influence that he has will join in urging a bold progressive housing policy such as is proposed by the National Garden Cities Committee, of 19, Buckingham Street, Strand, W.C.2. Half a million houses will have to be built in the future, and we must demand that they be built under the best possible conditions. I am not inviting him to send these men to Letchworth, for we already have our share, but we need a multiplication of garden cities.—I am, etc.,

NORMAN MACFADYEN, M.D., D.P.H.

Letchworth, June 2nd.

[1] "Theories of Inheritance, with special reference to the inheritance of acquired conditions in man."—BRITISH MEDICAL JOURNAL, vol. i, 1901.

Universities and Colleges.

UNIVERSITY OF OXFORD.

AT a congregation held on May 25th the degree of M.B. was conferred on W. J. Hart.

UNIVERSITY OF LONDON.

THE following candidates have been approved at the examinations indicated:

THIRD M.B., B.S.—*W. A. Hewitson, *Emily Catherine Lewis, *†J. G. Wardrop, Ruth Balfour, M. Baranov, G. Bourne, G. W. J. Bousfield, H. Carpenter, D. C. Clark, R. N. Cooper, R. M. Dannatt, W. Feldman, Marjorie E. Franklin, Eryl Glynne, H. E. Griffiths, Winifred E. Lepper, A. E. B. Paul, E. N. Ramsbottom, Violet I. Russell, C. K. Scales, Eleanor M. Scarborough, Elisabeth H. Schwab, A. Selby-Green, Charlotte A. Shields, Elsie Stansfield, G. P. Staunton, T. J. Thomas, Naomi Tribe, R. N. Vakil, Phillis E. Webb, E. Wolff, H. W. S. Wright, Irene Yates, W. A. Young.

* Distinguished in Surgery.
† Distinguished in Forensic Medicine.

The following candidates have passed in one of the two groups of subjects:

Group I.—Mary N. Andrews, J. E. A. Boucaud, O. S. Martin, Irene G. Parsons, Lily D. Taylor, J. A. van Heerden. *Group II.*—G. E. Barker, O. D. Brownfield, G. F. Cooke, H. C. Cox, J. H. Dancy, Maud Gazdar, H. N. Hornibrook, P. Hughes, P. N. Menon, Gladys M. Miall-Smith, B. H. Pidcock.

UNIVERSITY OF ST. ANDREWS.

THE following medical degrees were conferred at the graduation ceremony on June 1st:

M.B., CH.B.—J. C. Coutts, J. Ferguson, Janet H. Hodge, J. C. M'Gregor, J. K. T. Mills, Jean M. Orkney, G. R. Ross, Margaret W. Shirlaw, G. R. Tudhope, Tharyan Verghese.
M.D.—K. M'Lay, Captain R.A.M.C.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

ON the invitation of the president and council, a representative number of surgeons in the United States Naval Service visited the college and museum on May 31st. The party was received by the president, Dr. R. McKenzie Johnston, and members of council. There were also present Major-General John Joshua Russell, A.M.S., D.D.M.S. Scottish Command, and representatives of the British navy at present on active service.

Medical News.

THE late Mr. William Hamerton Jalland, F.R.C.S., of York, left £65,225.

DR. G. ARBOUR STEPHENS has been elected chairman of the Glamorgan Poor Law Committee for the Feeble-minded which administers the Drymma Institution at Neath.

THE sixty-ninth annual meeting of the American Medical Association is to begin at Chicago on June 10th. It will be attended by several British representatives including Sir Arbuthnot Lane and Sir James Mackenzie.

DR. W. NONNENBRUCH claims to have cured a severe case of botulism with serum supplied by the Koch Institute. Clinically the case was typical, and the improvement coincided exactly with the injections, three of which were given.

THE Freemasons' War Hospital No. 2, an extension of the original hospital in the Fulham Road, has now been installed in Fulham Palace, and was formally opened by its President, the Duke of Connaught, on May 31st. The accommodation provided is 100 beds. His Royal Highness commended this work of Freemasons for the wounded, and as Grand Master wished it every possible success.

OWING to the great shortage of nurses in Germany, much of the nursing and night watching has been done by other hospital employees. Cooks have nursed infectious cases, and one cook, who nursed a case of typhoid fever, passed the disease on to eleven persons through their food. The Minister of the Interior has, therefore, forbidden members of the kitchen staff of a hospital to take part in the nursing of infectious cases under any circumstances.

THE annual report of the Homes for Inebriates Association for 1917–18 contains in an abbreviated form the report by Dr. F. S. D. Hogg, resident medical superintendent of Dalrymple House, Rickmansworth. During 1917, 47 patients were admitted, 38 of whom were cases of alcoholism, and 9 were suffering from drug addiction. Nine patients joined the army immediately on leaving the home, and Dr. Hogg finds that most of those discharged who have entered one of the services have done well. More than 50 former patients are known to have joined the colours.

AT its meeting in London on May 28th the President, Lieut.-Colonel D. G. Thomson, announced that the late

Dr. Maudsley had bequeathed £2,000 to the Medico-Psychological Association of Great Britain and Ireland. The disposal of the bequest will be considered by the Council at its next meeting. The annual meeting will be held in Edinburgh next month, when Colonel Keay, Medical Superintendent, Edinburgh District Asylum (Bangour Village), will succeed Lieut.-Colonel Thomson as President.

At the annual general meeting of the Society for Relief of Widows and Orphans of Medical Men on May 29th, when Sir A. Pearce Gould, president, was in the chair, it was reported that the invested funds amounted to £143,550 and the income from investments to £4,557 18s. 7d. Subscriptions and donations amounted to £317 2s., and the working expenses for the year were £267 10s. The sum of £4,292 10s. was distributed among the annuitants of the charity (48 widows and 7 orphans). Membership is open to any registered medical practitioner who at the time of his election is resident within twenty miles of Charing Cross. Relief is only granted to the widows and orphans of deceased members. At the present time the widow of a member who has an income of £100 per annum or under receives a grant of about £80 per annum, and each orphan up to the age of 16 receives £43 per annum. There are, however, two special funds which enable the directors to continue the grants to orphans after the age of 16. Further particulars of the society may be obtained on application to the secretary at the offices of the society, 11, Chandos Street, Cavendish Square, W.1.

The following provision has now been made by the Ministry of Food for the supply of extra rations to expectant and nursing mothers: Expectant mothers may receive, on application in due form to the Local Food Office, an extra ration during the last three months of pregnancy. This may consist either of two meat coupons per week or of one butter coupon per week. In districts where a milk priority scheme has been found necessary they may also obtain a priority permit for one pint of milk daily during the same period. Nursing mothers will not themselves receive any additional ration, but are entitled to use the rations obtainable for the infant, namely, the ordinary child's weekly ration of meat, butter or margarine, and sugar, and in districts in which priority schemes are in force, a priority certificate for one and a half pints of milk daily. To obtain the child's meat and food cards, application must be made to the Local Food Office on a special form.

Letters, Notes, and Answers.

The postal address of the British Medical Association and British Medical Journal is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the British Medical Journal, *Aitiology, Westrand, London*; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediocra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

QUERIES AND ANSWERS.

Sterilization of Catgut.

"Old Member."—There are many ways of sterilizing catgut. Lister's sulphochromic method is described in Caird and Cathcart's handbook. Boiling, or Jellett's method, is usually employed, under some modification, for the proprietary brands put up in sealed glass tubes. The ether and corrosive sublimate method requires the raw gut to be soaked in ether and 1 in 4,000 perchloride for a week each. The method of choice to-day, however, is the iodine method, which is at once simple and reliable. Commercial catgut is steeped in ether for twenty-four hours and then transferred to a 1 per cent. solution of iodine in potassium iodide for eight days. It may be kept in this solution indefinitely. Before use it should be placed in sterilized water for a few minutes.

LETTERS NOTES, ETC.

Medical Sickness and Accident Society.

Dissatisfied writes: Allow me to join in the protest against the withdrawal of bonus to those going out of benefit. I reach the age limit this summer, and have been expecting the usual payment at that time. That it should not be paid is, I consider, a very great injustice to me and to those who have been paying their premiums for many years, and who are likewise approaching the end of their benefits, especially as the funds of the society are in a good sound state, and well able to bear the old bonus payment. I think that a special meeting of the society ought to be called to discuss and reconsider such an important decision, as I do not for a moment suppose it can have the support of the majority of its members.

A Fatal Self-inflicted Lesion.

Professor Santi Pusateri recently reported to the Royal Medical Academy of Palermo (*Il Policlinico: sezione pratica*, May 19th, 1918) a case which is of special interest owing to its extreme rarity. On May 8th, 1917, a soldier, in order to escape returning to the front, injected nitric acid into his right ear. This was followed by high fever, vomiting, giddiness, headache, and acute pain in the right mastoid region. Seventeen days afterwards facial paralysis supervened, and nearly three weeks later haemorrhage from the right ear and from the nose came on. On October 6th the tympanum was explored, and it was found that the ossicles had become disintegrated. A large amount of granulation tissue was removed and was quickly reproduced. On November 21st there was recurrence of venous haemorrhage, and the man died four days later (about 6½ months after the injection of the acid). *Post-mortem* examination showed rupture of aneurysms of the carotid artery and jugular vein at a point corresponding to the lower and anterior walls of the tympanic cavity. The front surface of the petrous bone was eroded, and on the corresponding surface of the dura there was a thin layer of pus spreading towards the middle fossa of the brain and the cerebellum. The erosion of the vessels by the necrotic and suppurating process was the direct cause of death by haemorrhage, but even without this the purulent leptomeningitis would probably have proved fatal. The present war has shown that the ear is chosen in preference to other organs as the object of self-inflicted injury probably because the public, and even some doctors, think that such lesions are of comparatively little importance.

The Billing Case.

The hearing of the case against Mr. Billing, M.P., which ended in his acquittal, was conducted in such a manner as to bring to the notice of a very wide public an evil which is apparently an invariable accompaniment of civilization when it reaches the stage of luxury. As we had occasion to show some years ago, the practices of sexual perverts are defended with the utmost effrontery by a number of persons who pose as philosophers, and many of whom have undoubtedly possessed literary talents of a high order. This attitude towards an irrational vice is inexplicable to the healthy mind of man or woman, and must be classed among pathological states. The vice seems usually to be congenital—that at least we take to be the outcome of Krafft-Ebing's researches—but apparently it may be developed by example and precept in individuals of unstable sexual equilibrium who, without such stimulation, would never spontaneously have given evidence of perversion. It is probably for this reason that the majority of people consider that such lapses are best treated by police methods.

The Belgian Doctors' and Pharmacists' Relief Fund.

Subscriptions to the Second Appeal.

The following subscriptions and donations to the Fund have been received during the fortnight ending June 1st:

	£	s.	d.		£	s.	d.
Dr. W. Maxwell Penny ...	2	0	0	Dr. Evan Jones	0	10	6
Dr. John A. Macdonald ...	1	1	0	Dr. Killen	1	1	0
Dr. J. J. Perkins	3	3	0	Dr. Edhir	1	1	0
The Viscount Iveagh, K.P. (per Sir Rickman Godlee)	25	0	0	Medical Insurance Agency (per Dr. Haslip, chairman)	50	0	0
Dr. J. A. Macdonald (Taunton)	5	5	0	Sir Rickman Godlee ...	4	2	6
Sir Francis Champneys ...	5	0	0	Dr. A. Bowe (sale of microscope)	1	5	0
Dr. C. Legg	0	10	6	Dr. Taylor	2	2	0
R. H. W.	20	0	0				

Subscriptions to the Fund should be sent to the Treasurer, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	6	0
Each additional line	0	0	9
Whole single column	4	0	0
Whole page	12	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

Note.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.